

A

FINATEC

SELEÇÃO PÚBLICA Nº 048/2024

Prezado Cliente,

Em atenção a sua consulta, que agradecemos, temos a satisfação de oferecer os materiais abaixo relacionados, e colocamo-nos à inteira disposição para quaisquer esclarecimentos que se façam necessários.

	Descrição	Qtde	Unitário	Total
01	Dell Technologies PowerEdge R6615  2.5" Chassis with up to 8 NVMe HWRAID Drives, Smart Flow, Front PERC II PowerEdge R6615 Motherboard V2 Processador AMD EPYC 9124 3.0GHz, 16Cores/32Threads, 64M Cache (200W) DDR5-4800 128GB 4 x 32GB RDIMM, 4800MT/s, Dual Rank 16Gb Base x8, BCC Controladora PERC H755N (validar brackets para Smart Flow ou traseiro) C3I, No RAID with NVMe and front PERC 2 x NVMe Enterprise 1.92TB Read Intensive AG Drive U.2 Gen4 with carrier Placa Broadcom 57414 Dual Port 10/25GbE SFP28, OCP NIC 3.0 Broadcom 5720 Dual Port 1GbE Optional LOM Painel Frontal com LCD (Bezel)	01	65000.00	65000.00

Riser Config 2, 1 x16 LP (Gen4) + 2 x16 LP (Gen5) Quick Sync 2 (At-the-box mgmt) 4 Very High Performance Fan for 1 CPU DRAC9 Enterprise 16G Bracket for floating load on fPerc Braço para gerenciamento de cabos/rack Trilhos deslizantes para rack Trusted Platform Module 2.0 V3 Fonte de energia Redundante Dual, Hot-plug, (1+1), 800W 2 x Cabos de força 250V, NBR14136/C13 de 2 metros Sem sistema operacional – Consulte matriz de homologação de sistemas ProSupport Next Business Day Onsite Service After Problem Diagnosis 3 Years			
Valor total: R\$ 65000.00			

Validade da Proposta – 02 dias corridos desta data, para o cenário detalhado nesta Proposta Comercial. Qualquer alteração deve ser alinhada.

Condição de Pagamento, conforme PC

Prazo de Entrega, 21 dias úteis

Garantia - a garantia é de responsabilidade do fabricante.

Empresa Optante pelo Simples Nacional

Valores expressos em Reais

Condições comerciais de fornecimento

- Todos os impostos inclusos nos valores unitários - para o cenário apresentado, conforme característica do produto, região e condição tributária;
- Os preços ofertados não incluem a instalação dos produtos;
- Valores não são válidos para outras cotações e quantidades fora desta proposta;
- Para o caso de valores apresentados em US\$ serão convertidos em reais na data de faturamento pela cotação do dólar do dia anterior. Havendo variação cambial que gere um desequilíbrio financeiro na presente operação de venda, a A&B Tecnologia se reserva o direito de considerar um valor de dólar compatível com o momento do faturamento;



- Faturamento Direto pelo Distribuidor pode implicar em alteração de preços dependendo da região onde o cliente se encontra ou sua condição de contribuinte ou não de ICMS.
- Concordo que uma vez aceito e enviado esse pedido, o mesmo não mais poderá ser cancelado ou devolvido, principalmente se tratando de encomenda, como produtos que não constam em estoque, ou licenciamento de Software que são personalizados.

Brasília, 25 de abril de 2024.

Adriane Gebrim
Gerente Comercial

CARTA PROPOSTA
SELEÇÃO PÚBLICA Nº 048/2024

Razão Social: Athanase Engenharia e Construções Ltda. CNPJ: 34.777.517/0001-03

Endereço Completo: ST. SCIA QD. 14 CONJ. 5 LT. 10 SL. 208 ZONA INDUSTRIAL (Guará) – Brasília/DF CEP: 71.250-125

Telefone: 61 99981-1452

E-mail: athanase.engenharia@gmail.com

À

Fundação de Empreendimentos Científicos e Tecnológicos – FINATEC

Declaramos que foram examinadas minuciosamente as especificações e condições do Edital e de seus anexos, em especial seu Anexo I - Termo de Referência – destinado à contratação de empresa especializada no fornecimento de equipamentos para marcenaria.

Propomos, sob nossa integral responsabilidade, o fornecimento do item descrito no Termo de Referência – Anexo I desta Seleção Pública, pelos valores, descritos na planilha detalhada abaixo:

ITEM	ESPECIFICAÇÃO	MARCA	MODELO	QTD	VALOR UNITÁRIO	VALOR TOTAL
01	Servidor Rack PowerEdge R6615 com Windows Server®	DELL	R6615	01	R\$ 38.514,33	R\$ 38.514,33
VALOR GLOBAL					R\$ 38.514,33	

Propomos, sob nossa integral responsabilidade, o fornecimento dos equipamentos, na forma prevista na Presente Seleção e seus anexos, pelo valor global de R\$ 38.514,33 (Trinta e oito mil e quinhentos e quatorze reais e trinta e três centavos).

Garantia: 6 (seis) meses.

Prazo de Entrega: 30 dias.

Validade da Proposta: 30 dias.

Condições de Pagamento: conforme item 8 do Edital.

Dados bancários: Banco 0260, Agência 0001, Conta Corrente nº 98539777-4.

Declaramos que nos preços ofertados estão incluídas todas as despesas, tributos e demais encargos de qualquer natureza, incidentes sobre o fornecimento dos equipamentos, nada mais podendo ser cobrado da FINATEC.

Declaramos total concordância com os termos e condições desta Sessão Pública.

Brasília – DF, 29 de abril de 2024.

**ATHANASE ENGENHARIA
E CONSTRUÇÕES
LTDA:34777517000103**

Assinado de forma digital por ATHANASE ENGENHARIA E
CONSTRUÇÕES LTDA:34777517000103
DN: c=BR, o=ICP-Brasil, st=DF, l=Brasília, ou=ACSOLUTIMultiplav5,
ou=29180757000196, ou=Videoconferencia, ou=Certificado PJA1,
cn=ATHANASE ENGENHARIA E CONSTRUÇÕES
LTDA:34777517000103
Dados: 2024.04.25 15:29:30 -03'00'
Versão do Adobe Acrobat Reader: 2024.002.20687

Athanase Engenharia e Construções Ltda
Michail Athanase
Sócio-Diretor

CNPJ: 34.777.517/0001-03 | CREA/DF - 14384/RF

Endereço: ST. SCIA QD. 14 CONJ. 5 LT. 10 SL. 208 ZONA INDUSTRIAL (Guará) – Brasília/DF CEP: 71.250-125

Contatos: athanase.engenharia@gmail.com | (61) 99981-1452

ESPECIFICAÇÕES TÉCNICAS

Base

PowerEdge R6615 Server BCC

Sistema operacional

Windows Server® 2022 Standard, 16 núcleos, instalação de fábrica, sem CALs, várias línguas

Trusted Platform Module (TPM)

Trusted Platform Module 2.0 V3

Configuração de Chassi

2.5" Chassis with up to 10 SAS4/SATA Drives, Front PERC 11

Processor

AMD EPYC 9124 3.0GHz, 16C/32T, 64M Cache (200W) DDR5-4800

Configuração térmica do processador

High Performance Heatsink, V2

Memória

(2) 16GB RDIMM, 4800MT/s Single Rank

RAID

C3, RAID 1 for 2 HDDs or SSDs (Matching Type/Speed/Capacity)

Controlador RAID

PERC H355 with rear load bracket

Armazenamento

(2) 960GB SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD

Ventiladores

4 Very High Performance Fan for 1 CPU

Fonte de alimentação

Dual, Hot-plug, Power Supply Fully Redundant (1+1), 800W, Mixed Mode, NAF

Cabo de alimentação

(2) C13 to C14, PDU Style, 12 AMP, 13 Feet (4m) Power Cord, North America

Gerenciamento de sistemas integrado

iDRAC9, Express 16G

Placa de rede adicional

LOM Blank

Tampa frontal

Std Bezel for x8 /x10 Chassis, R6615

Trilhos de rack

ReadyRails Sliding Rails Without Cable Management Arm or Strain Relief Bar

Cartões de armazenamento com boot otimizado

No BOSS Card

Kits de mídia do sistema operacional

Windows Server 2022 Standard,16CORE,DF Recovery Image, Multi Lang, (Downgrade not included); Windows Server 2022 Standard,16CORE,Media Kit, Multi Lang, (Downgrade not included)

Serviço iDRAC

iDRAC Service Module (ISM), NOT Installed

Regulatório

PowerEdge R6615 CCC Marking, No CE or BIS Marking

Configurações avançadas do sistema

UEFI BIOS Boot Mode with GPT Partition

Backplane

SAS/SATA Backplane

Definições das configurações avançadas do sistema e do BIOS

Performance BIOS Setting

Armazenamento frontal

Chassis with up to 10x2.5" Drives

Tipo de configuração da memória

Performance Optimized

Tipo e velocidade de memória DIMM

4800MT/s RDIMMs

Placa-mãe

PowerEdge R6615 Motherboard V2

Network Daughter Card (NDC)

Broadcom 5720 Quad Port 1GbE BASE-T Adapter, OCP NIC 3.0

PCIe Riser

Riser Config 2, 3 x16 LP (2x Gen5)

Armazenamento traseiro

No Rear Storage

Sync

Quick Sync 2 (At-the-box mgmt)

Senha

iDRAC9 Factory Generated Password for OCP cards

Documentação do Sistema

No Systems Documentation, No OpenManage DVD Kit

Envio

PowerEdge R6615 Shipping BCC

Material de envio

Shipping Material for backplane chassis, BCC

Gerente do Grupo

iDRAC Group Manager, Disabled

ECCN

Decline Selection

Assistência técnica

3 Years Prosupport Next Business Day Onsite Service-BZ

Serviços de implementação

No Installation-LABZ



CS TECNOLOGIA
BUSINESS TO GOVERNMENT

(61) 99660-1025 / (61) 99991-1008
corporativo@grupocstech.com
42.438.841/0001-25

A empresa CS Tecnologia, com CNPJ: 42.438.841/0001-25, sediada na QR 307, CJ 8 14, em Brasília-DF, apresenta sua proposta comercial em resposta à Dispensa Eletrônica N° **048**, a FINATEC

ITEM	DESCRIÇÃO	UND	QTD	PREÇO UNITÁRIO R\$	PREÇO TOTAL R\$
1	MARCA: DELL MODELO: Servidor Rack PowerEdge R6615 DESCRIÇÃO: Base PowerEdge R6615 Server BCC Sistema operacional No Operating System Trusted Platform Module (TPM) Trusted Platform Module 2.0 V3 Configuração de Chassi 2.5" Chassis with up to 10 SAS4/SATA Drives, Front PERC 11 Processor AMD EPYC 9124 3.0GHz, 16C/32T, 64M Cache (200W) DDR5-4800 Configuração térmica do processador High Performance Heatsink, V2 Memória (4) 32GB RDIMM, 4800MT/s Dual Rank	UND	1	R\$ 82.900,00	R\$ 82.900,00



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corporativo@grupocstech.com
42.438.841/0001-25

RAID C3, RAID 1 for 2 HDDs or SSDs (Matching Type/Speed/Capacity) Controlador RAID PERC H755 with rear load Brackets Armazenamento (2) 1.92TB SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD Ventiladores 4 Very High Performance Fan for 1 CPU Fonte de alimentação Dual, Hot-plug, Power Supply Fully Redundant (1+1), 800W, Mixed Mode, NAF Cabo de alimentação 2 x Cabos de força 250V, NBR14136/C13 de 2 metros Gerenciamento de sistemas integrado iDRAC9, Enterprise 16G Placa de rede adicional Broadcom 5720 Dual Port 1GbE LOM Tampa frontal LCD Bezel for x8 /x10 Chassis, R6615				
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corporativo@grupocstech.com
42.438.841/0001-25

Trilhos de rack Trilhos deslizantes ReadyRails com braço para gerenciamento de cabos				
Cartões de armazenamento com boot otimizado No BOSS Card				
Kits de mídia do sistema operacional No Media Required				
Serviço iDRAC iDRAC Service Module (ISM), Pre-Installed in OS				
Regulatório PowerEdge R6615 CCC Marking, No CE or BIS Marking				
Configurações avançadas do sistema UEFI BIOS Boot Mode with GPT Partition				
Backplane SAS/SATA Backplane				
Definições das configurações avançadas do sistema e do BIOS Performance BIOS Setting				
Armazenamento frontal				



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corporativo@grupocstech.com
42.438.841/0001-25

Chassis with up to 10x2.5" Drives				
Tipo de configuração da memória Performance Optimized				
Tipo e velocidade de memória DIMM 4800MT/s RDIMMs				
Placa-mãe PowerEdge R6615 Motherboard V2				
Network Daughter Card (NDC) Broadcom 57414 Dual Port 10/25GbE SFP28, OCP NIC 3.0				
PCIe Riser Riser Config 3, 2 x16 FH (Gen5)				
Armazenamento traseiro No Rear Storage				
Sync Quick Sync 2 (At-the-box mgmt)				
Senha iDRAC,Factory Generated Password				
Documentação do Sistema No Systems Documentation, No OpenManage DVD Kit				
Envio PowerEdge R6615 Shipping BCC Material de envio				



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BUSINESS TO GOVERNMENT

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corporativo@grupocstech.com
42.438.841/0001-25

Shipping Material for backplane chassis, BCC					
Gerente do Grupo iDRAC Group Manager, Disabled ECCN					
Decline Selection					
Assistência técnica 3 Years Prosupport Next Business Day Onsite Service-BZ					
Serviços de implementação No Installation-LABZ					
https://www.dell.com/pt-br/shop/cty/pdp/spd/poweredge-r6615/pe_r6615_16729_bcc_2?cartitemid=50b8e7b7-e072-4a6e-b639-9c509e4a9042&ref=cartconfigedit&configurationid=a8ed2d62-9650-41ef-be06-08ff03bc14fc					

1. Preço total da proposta R\$ **82.900,00**
2. Prazo de validade da proposta: 30 dias.
3. Prazo para pagamento: 30 dias.
4. Prazo para a entrega do material: 60 (sessenta) dias.
5. Prazo de garantia: 3 Anos Prosupport Next Business Day Onsite Service-BZ
6. O material será entregue de acordo com as especificações contidas no edital.
7. Garantimos a substituição do produto ofertado, em caso de defeito de fabricação.
8. Estão inclusos no preço todos os custos e despesas, tais como e sem se limitar com:



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BUSINESS TO GOVERNMENT

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corporativo@grupocstech.com
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custos diretos e indiretos, tributos incidentes, taxas de administração, materiais, serviços e encargos sociais.

9. Banco: 077-Banco Inter | Agência: 0001 | Conta: 13577417-9.

Brasília, 23 de abril de 2024.

Caio Souza Barros
Representante Legal
CPF: 057.870.581.86
RG: 3873338 SSP DF



ER
SOLUÇÕES

Serra - ES, 29-04-2024

FINATEC

Brasília - DF

A/C DEPARTAMENTO DE LICITAÇÃO

REF.: Tomada de Preços nº 048/2024

Objeto da licitação: A presente Seleção Pública tem como objeto a contratação de empresa especializada no fornecimento de equipamento de informática, conforme as especificações mínimas e quantitativos contidos no Termo de Referência – Anexo I



Filial - ES: End: Av. Cem, S/N, Quadra 01 - Módulo 01, Sala 01 - Piso 02
Terminal Intermodal, Serra, ES CEP 29.161-384
gov@ersolucoes.com.br





ER
SOLUÇÕES

Filial

E.R. Soluções de Informática Ltda.

CNPJ: 05.778.325/0005-47

Inscrição Estadual: 083.668.152

Inscrição Municipal: 470.913.1

Telefone: +55 (16) 99644-9918

E-mail: ersolucoes@ersolucoes.com.br

End: Av. Cem, S/N, Qd 01 - Mod 01, sala 01 - Piso 02

Terminal Intermodal, Serra, ES CEP 29.161-384

Prezados,

Vimos por meio desta, apresentar nossa proposta comercial e temos o prazer de encaminhar, para análise e apreciação, uma breve apresentação desta empresa, com o intuito de conhecerem nosso prestígio.

Desde 1997 prestando serviços em Tecnologia da Informação, a ER Soluções esteve sempre presente nos principais acontecimentos da Indústria da Informática no Brasil.

Com larga experiência varejista além da já premiada atuação no setor governamental e agora com uma ativa presença no mercado SMB regional, a E.R. Soluções obteve importantes parcerias permitindo a presença constante nos principais usuários de TI. Adquirimos competências fundamentais envolvendo as principais tecnologias e os melhores fabricantes do mercado, destacando-se Dell, Lenovo, Microsoft e VMware, entre outras parceiras.

É com este know-how que oferecemos produtos e serviços com o que há de mais moderno dentro das melhores práticas em TI, com equipes de profissionais treinados e certificados, elaborando projetos, apresentando soluções, atendendo necessidades, e prevendo demandas para os mais diversos negócios em todo o território nacional.

O documento a seguir apresenta a proposta de equipamentos, softwares e serviços para o referido pregão.

Desde já agradecemos a oportunidade de oferecer os nossos produtos e serviços, e nos colocamos à disposição para os esclarecimentos adicionais que se fizerem necessários.



Filial - ES: End: Av. Cem, S/N, Quadra 01 - Módulo 01, Sala 01 - Piso 02
Terminal Intermodal, Serra, ES CEP 29.161-384
gov@ersolucoes.com.br





ER
SOLUÇÕES

1. PROPOSTA COMERCIAL

Item	Descrição	Quantidade	Valor Unitário	Valor Total
1	LENOVO THINKSYSTEM SR645	1,00	R\$ 88.331,39	R\$ 88.331,39

Total Geral da proposta R\$ 88.331,39

GEORGE
EDUARDO
SALIBY:9829133
5834

Assinado de forma
digital por GEORGE
EDUARDO
SALIBY:98291335834
Dados: 2024.04.29
08:58:50 -03'00'

George Eduardo Saliby

Diretor Comercial

Serra - ES, 29-04-2024

Atenciosamente,

ANDRE LUIS
MACHADO
PELICIONI:24
878554878

Assinado de forma
digital por ANDRE LUIS
MACHADO
PELICIONI:24878554878
Dados: 2024.04.29
09:02:10 -03'00'

André Luís Machado Pelicioni

Diretor Administrativo



Filial - ES: End: Av. Cem, S/N, Quadra 01 - Módulo 01, Sala 01 - Piso 02
Terminal Intermodal, Serra, ES CEP 29.161-384
gov@ersolucoes.com.br



2. ESPECIFICAÇÕES TÉCNICAS

ITEM 1 - LENOVO THINKSYSTEM SR645 v3

- 1 X ThinkSystem SR645 V3- 7D9CCTO1WW
- 1 X ThinkSystem V3 1U 10x2.5" Chassis
- 1 X Operating mode selection for: "Maximum Efficiency Mode"
- 1 X Data Center Environment 30 Degree Celsius / 86 Degree Fahrenheit
- 2 X ThinkSystem AMD EPYC 9124 16C 200W 3.0GHz Processor
- 2 X ThinkSystem SR645 V3/SR635 V3 1U High Performance Heatsink
- 1 X Platform Secure Boot Enable
- 2 X ThinkSystem 64GB TruDDR5 4800MHz (2Rx4) 10x4 RDIMM-A
- 1 X Select Storage devices - configured RAID
- 1 X ThinkSystem RAID 940-8i 4GB Flash PCIe Gen4 12Gb Adapter for U.3
- 1 X Controller 1 HW RAID Array 1 RAID 1
- 2 X ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD
- 1 X ThinkSystem 1U 10x2.5" AnyBay Backplane
- 1 X ThinkSystem Intel I350 1GbE RJ45 4-port OCP Ethernet Adapter
- 1 X ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter
- 1 X ThinkSystem V3 1U x16/x16 BF PCIe Gen4 Riser1
- 1 X ThinkSystem V3 1U MS LP+LP BF Riser Cage
- 2 X ThinkSystem 1100W 230V/115V Platinum Hot-Swap Gen2 Power Supply v3
- 2 X 2.8m, 10A/250V, C13 to NBR 14136 (Brazil) Line Cord
- 8 X ThinkSystem V3 1U Performance Fan Option Kit v2
- 1 X ThinkSystem 1U V3 10x2.5" Media Bay w/ Ext. Diagnostics Port
- 1 X ThinkSystem Toolless Slide Rail Kit v2 with 1U CMA
- 1 X ThinkSystem 1U Front VGA Cable
- 1 X TPM 2.0
- 1 X ThinkSystem V3 1U Security Bezel
- 1 X Enable System Guard
- 1 X ThinkSystem RAID 930/940 SuperCap
- 1 X XCC Platinum
- 1 X ThinkSystem SR645 V3 MB
- 1 X MI for PXE with RJ45 Network port
- 1 X 940 Series Flash Adapter for U.3 Trimode Setting
- 1 X RAID Configuration
- 2 X Controller 1 HW RAID Array 1 HDDs
- 1 X Brazil CPK
- 1 X ThinkSystem 1U PLV Top Cover Sponge
- 1 X ThinkSystem 1U 2x2.5" Fixed Filler
- 1 X ThinkSystem 1U MS LP Riser Filler
- 1 X ThinkSystem SR645 V3 Absolut-RoW RoT Module
- 1 X software1 XClarity Pro, Per Endpoint w/3 Yr SW S&S
- 1 X Lenovo XClarity Pro, Per Managed Endpoint w/3 Yr SW S&S
- 1 X software2 XClarity Controller Platin-FOD
- 1 X Lenovo XClarity XCC2 Platinum Upgrade (FOD)
- 1 X software3 Configuration Instruction
- 1 X Premier Foundation - 3Yr NBD Resp SR645 V3

3. CONDIÇÕES COMERCIAIS

Validade da Proposta: Validade da Proposta: 30 dias Conforme definido no edital.

Entrega

O prazo de entrega dos equipamentos é de 20 (vinte) dias úteis após a emissão da Autorização de Fornecimento – AF. Conforme definido no edital.

Local de Entrega

O equipamento deverá ser entregue em perfeita condição de utilização no endereço abaixo:
Fundação de Empreendimentos Científicos e tecnológicos – FINATEC Endereço:
Campus Universitário Darcy Ribeiro, Edifício FINATEC, Setor SS4, Asa Norte, Brasília – DF, CEP. 70910-900

Conforme definido no edital

Condições de Pagamento:

O pagamento será efetuado somente após a entrega dos equipamentos, mediante depósito bancário, em conta corrente de titularidade da empresa vencedora, no prazo de até 15 (quinze) dias úteis, contados da apresentação da respectiva Nota Fiscal, emitida de acordo com as normas e legislação aplicável, devidamente atestada pelo Coordenador do Projeto.

Conforme definido no edital

Dados da Conta Bancária

Banco do Brasil
Ag. 3235-2
Conta Corrente: 115.747-7

DECLARAMOS, que nos preços contidos na Proposta de Preços, estão incluídos todos os custos diretos e indiretos, sem que caiba, em qualquer caso, direito regressivo sobre a execução de serviços, objeto desta licitação, tais como: impostos, taxas, frete CIF, transportes, inclusive o lucro do fornecedor, materiais, equipamentos, mão-de-obra, encargos sociais, trabalhistas e previdenciários, tributos e contribuições de qualquer natureza ou espécie, não cabendo, portanto, nenhuma reclamação posterior no sentido de alteração de preços.

DECLARAMOS, que aceitamos todas as condições estabelecidas no edital e nos anexos do Tomada de Preços 048/2024

DECLARAMOS, que a fabricante possui recurso disponibilizado via website do próprio fabricante <https://pcsupport.lenovo.com/br/pt/warrantylookup>, para realizar a validação e verificação da garantia do equipamento através da inserção do número de série do equipamento e também disponibiliza em seu web site



<http://support.lenovo.com/us/en/lenovodiagnosicsolutions>, software capaz de realizar testes de diagnóstico de hardware.

DECLARAMOS, ainda, que a Lenovo dispõe de telefone gratuito 0800-701-4815 (ligações fora da cidade de São Paulo) e 11 3889-8986 (ligações de São Paulo) para abertura de chamados técnicos em Língua Portuguesa e service desk com histórico dos registros, e que os drivers, atualizações e suporte dos produtos Lenovo, estão disponíveis para download no site <http://support.lenovo.com/br/pt>. Os chamados serão abertos através de código de identificação único para cada máquina. Durante o prazo de garantia, será substituída sem ônus a contratante, a parte ou peça defeituosa, salva quando o defeito for provocado por uso inadequado dos equipamentos.

A Lenovo possui um canal específico para auxiliá-lo no descarte desses produtos. Caso você possua um produto Lenovo em situação de descarte, ligue para o nosso SAC ou encaminhe um e-mail para: reciclar@lenovo.com, informando o modelo, número de série e cidade, a fim de envio das instruções para o correto descarte do seu produto Lenovo.

DECLARAMOS, que todos os equipamentos a serem entregues serão novos, idênticos, com componentes externos e internos de mesmo modelo e marca dos equipamentos ofertados na proposta, salvo se o equipamento não se encontrar mais disponível no mercado no ato do pedido. Em caso de descontinuidade do produto oferecido, ou diante da indisponibilidade devidamente comprovada, este será substituído pelo sucedâneo com as mesmas características ou superiores, ou ainda, por um modelo com características idênticas ou superiores ao ofertado, mediante análise de catálogos, durante todo o período de validade da Ata de Registro de Preços ou do Contrato vigente.

GEORGE
EDUARDO
SALIBY:98291
335834
George Eduardo Saliby
Diretor Comercial

Assinado de forma digital por GEORGE EDUARDO
SALIBY:98291335834
Dados: 2024.04.29 08:59:32 -03'00'

Serra - ES, 29-04-2024

ANDRE LUIS
MACHADO
PELICIONI:2
4878554878
André Luís Machado Pelicioni
Diretor Administrativo

Assinado de forma digital por ANDRE LUIS MACHADO PELICIONI:24878554878
Dados: 2024.04.29 09:01:39 -03'00'



Filial - ES: End: Av. Cem, S/N, Quadra 01 - Módulo 01, Sala 01 - Piso 02
Terminal Intermodal, Serra, ES CEP 29.161-384
gov@ersolucoes.com.br





E.R.
SOLUÇÕES

FINATEC

Brasília - DF

REF.: Tomada de Preços nº 048/2024

DECLARAÇÃO DE DADOS PARA ASSINATURA DA ATA

A empresa **E.R. SOLUÇÕES INFORMÁTICA LTDA**, apresenta, a seguir, os dados de seus representantes legais para assinatura do eventual Contrato:

Dados Do Licitante - Filial

- 1) Razão Social/ Nome Fantasia: E.R. Soluções Informática Ltda.
- 2) CNPJ: 05.778.325/0005-47
- 3) Inscrição Estadual: 83668152
- 4) Inscrição Municipal: 470931
- 5) Endereço: AV Cem, S/N - Quadra 01, Módulo 01, Sala 01 - Piso 02
CEP: 29.161-384 – Serra - ES
- 6) Telefone: 16 99644-9918 / 16 3234-4433
- 8) E-mail geovanna@ersolucoes.com.br / ersolucoes@ersolucoes.com.br

Representante: George Eduardo Saliby

Cargo: Diretor Comercial
Endereço Residencial: Rua Severiano Amaro Dos Santos Nº
700 Apto 93 - Jardim Botânico
CEP 14021-620 – Ribeirão Preto -SP
Telefones: 16-3234-4433 / 16 99132-4429
CPF: 982.913.358-34
RG.: 7.854.271-6/SSP
Estado Civil: Divorciado
Nacionalidade: Brasileiro

Representante: André Luís Machado Pelicioni

Cargo: Diretor Administrativo
Endereço Residencial: - Av. Giuseppe Cilento nº 1811–
Apto 302 - Jardim Botânico
CEP. 14.021-650 – Ribeirão Preto / SP
Tels: Fixo E Celular 16-3234-4433 / 16 99129-7439
CPF: 248.785.548-78
RG.: 18.658.107 – SSP/SP
Estado Civil: Casado
Nacionalidade: Brasileiro

GEORGE
EDUARDO
SALIBY:982913
35834

Assinado de forma
digital por GEORGE
EDUARDO
SALIBY:98291335834
Dados: 2024.04.29
08:59:51 -03'00'

George Eduardo Saliby
Diretor Comercial

Serra - ES, 29-04-2024

ANDRE LUIS
MACHADO
PELICIONI:24
878554878

Assinado de forma
digital por ANDRE LUIS
MACHADO
PELICIONI:24878554878
Dados: 2024.04.29
09:00:59 -03'00'

André Luís Machado Pelicioni
Diretor Administrativo



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Serra - ES, 06-05-2024

FINATEC

Brasília - DF

A/C DEPARTAMENTO DE LICITAÇÃO

REF.: Tomada de Preços nº 048/2024

Filial

E.R. Soluções de Informática Ltda.

CNPJ: 05.778.325/0005-47

Inscrição Estadual: 083.668.152

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E-mail: ersolucoes@ersolucoes.com.br

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Terminal Intermodal, Serra, ES CEP 29.161-384

1. PROPOSTA COMERCIAL

Item	Descrição	Quantidade	Valor Unitário	Valor Total
1	LENOVO THINKSYSTEM SR645 V3	1,00	R\$ 88.331,39	R\$ 88.331,39

Total Geral da proposta R\$ 88.331,39

E R SOLUCOES
INFORMATICA
LTDA:0577832
5000547

Assinado de forma digital
por E R SOLUCOES
INFORMATICA
LTDA:05778325000547
Dados: 2024.05.06
09:58:13 -03'00'

Serra - ES, 06-05-2024



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2. ESPECIFICAÇÕES TÉCNICAS

ITEM 1 - LENOVO THINKSYSTEM SR645 v3

- 1 X ThinkSystem SR645 V3- 7D9CCTO1WW
- 1 X ThinkSystem V3 1U 10x2.5" Chassis
- 1 X Operating mode selection for: "Maximum Efficiency Mode"
- 1 X Data Center Environment 30 Degree Celsius / 86 Degree Fahrenheit
- 2 X ThinkSystem AMD EPYC 9124 16C 200W 3.0GHz Processor
- 2 X ThinkSystem SR645 V3/SR635 V3 1U High Performance Heatsink
- 1 X Platform Secure Boot Enable
- 2 X ThinkSystem 64GB TruDDR5 4800MHz (2Rx4) 10x4 RDIMM-A
- 1 X Select Storage devices - configured RAID
- 1 X ThinkSystem RAID 940-8i 4GB Flash PCIe Gen4 12Gb Adapter for U.3
- 1 X Controller 1 HW RAID Array 1 RAID 1
- 2 X ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD
- 1 X ThinkSystem 1U 10x2.5" AnyBay Backplane
- 1 X ThinkSystem Intel I350 1GbE RJ45 4-port OCP Ethernet Adapter
- 1 X ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter
- 1 X ThinkSystem V3 1U x16/x16 BF PCIe Gen4 Riser1
- 1 X ThinkSystem V3 1U MS LP+LP BF Riser Cage
- 2 X ThinkSystem 1100W 230V/115V Platinum Hot-Swap Gen2 Power Supply v3
- 2 X 2.8m, 10A/250V, C13 to NBR 14136 (Brazil) Line Cord
- 8 X ThinkSystem V3 1U Performance Fan Option Kit v2
- 1 X ThinkSystem 1U V3 10x2.5" Media Bay w/ Ext. Diagnostics Port
- 1 X ThinkSystem Toolless Slide Rail Kit v2 with 1U CMA
- 1 X ThinkSystem 1U Front VGA Cable
- 1 X TPM 2.0
- 1 X ThinkSystem V3 1U Security Bezel
- 1 X Enable System Guard
- 1 X ThinkSystem RAID 930/940 SuperCap
- 1 X XCC Platinum
- 1 X ThinkSystem SR645 V3 MB
- 1 X MI for PXE with RJ45 Network port
- 1 X 940 Series Flash Adapter for U.3 Trimode Setting
- 1 X RAID Configuration
- 2 X Controller 1 HW RAID Array 1 HDDs
- 1 X Brazil CPK
- 1 X ThinkSystem 1U PLV Top Cover Sponge
- 1 X ThinkSystem 1U 2x2.5" Fixed Filler
- 1 X ThinkSystem 1U MS LP Riser Filler
- 1 X ThinkSystem SR645 V3 Absolut-RoW RoT Module
- 1 X software1 XClarity Pro, Per Endpoint w/3 Yr SW S&S
- 1 X Lenovo XClarity Pro, Per Managed Endpoint w/3 Yr SW S&S
- 1 X software2 XClarity Controller Platin-FOD
- 1 X Lenovo XClarity XCC2 Platinum Upgrade (FOD)
- 1 X software3 Configuration Instruction
- 1 X Premier Foundation - 3Yr NBD Resp SR645 V3



3. LINKS LENOVO

DATASHEET

<https://lenovopress.lenovo.com/datasheet/ds0147-thinksystem-sr645-v3?orgRef=https%253A%252F%252Fwww.google.com%252F>

CATÁLOGO

https://pubs.lenovo.com/sr645-v3/pt-BR/sr645_v3_user_guide.pdf

DOWNLOAD DE DOCUMENTOS

https://pubs.lenovo.com/sr645-v3/pt-BR/pdf_files

RECURSOS E DOWNLOADS

https://pubs.lenovo.com/sr645/pt-BR/pdf_files

<https://lenovopress.lenovo.com/lp1590-thinksystem-7450-pro-read-intensive-nvme-ssds>

<https://lenovopress.lenovo.com/lp0781.pdf>

<https://www.amd.com/en/products/cpu/amd-epyc-9124>

<https://lenovopress.lenovo.com/tips1155-intel-i350-gigabit-ethernet-adapters>

<https://lenovopress.lenovo.com/lp1282-thinksystem-raid-940-series-internal-raid-adapters>

Atenciosamente,

GEORGE
EDUARDO
SALIBY:9829
1335834
George Eduardo Saliby
Diretor Comercial

Assinado de forma
digital por GEORGE
EDUARDO
SALIBY:98291335834
Dados: 2024.05.06
10:11:29 -03'00'

ANDRE LUIS
MACHADO
PELICIONI:2487
8554878
André Luís Machado Pelicioni
Diretor Administrativo

Assinado de forma
digital por ANDRE LUIS
MACHADO
PELICIONI:24878554878
Dados: 2024.05.06
10:12:20 -03'00'



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SPEC CPU®2017 Integer Rate Result

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Lenovo Global Technology

ThinkSystem SR645 V3
(3.00 GHz,AMD EPYC 9124)

SPECrate®2017_int_base = 354

SPECrate®2017_int_peak = 364

CPU2017 License: 9017

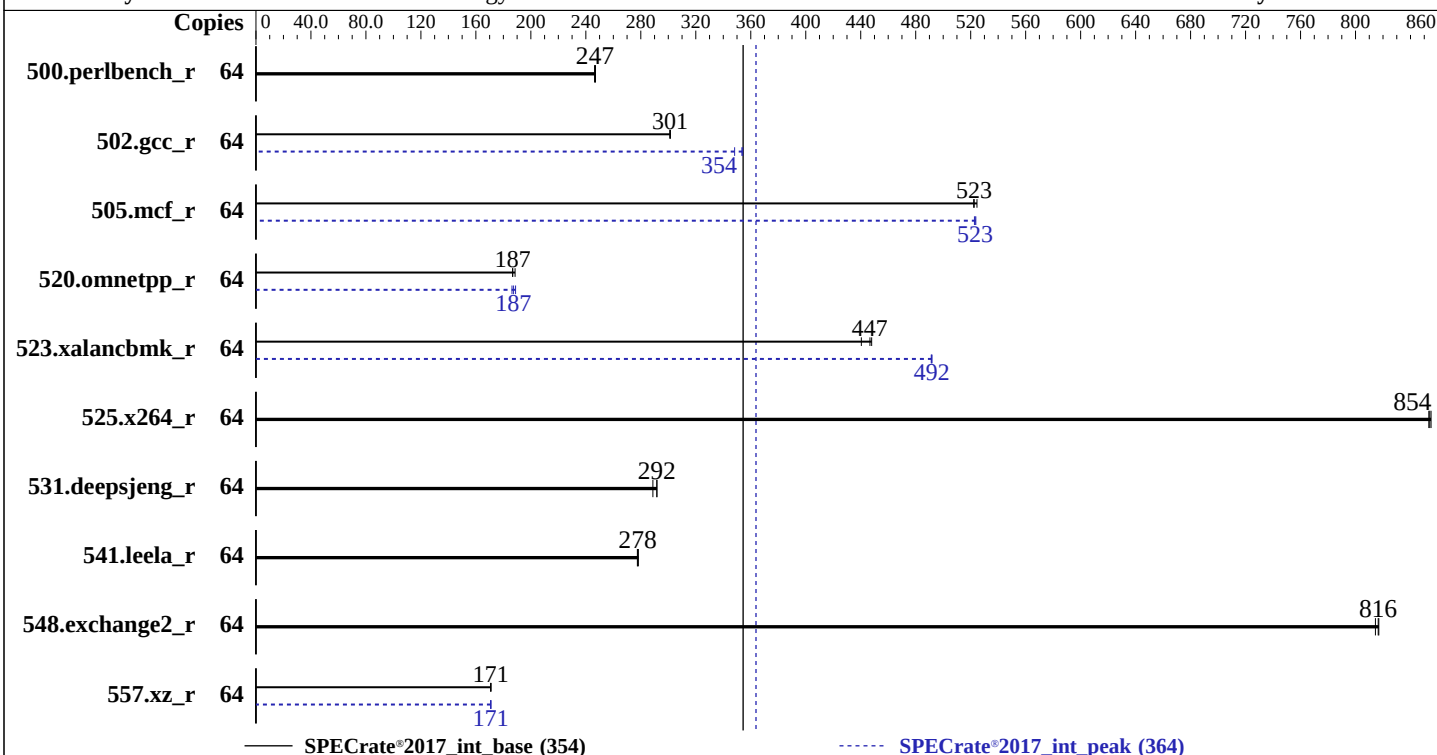
Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Nov-2022

Hardware Availability: Feb-2023

Software Availability: Nov-2022



Hardware

CPU Name: AMD EPYC 9124
Max MHz: 3700
Nominal: 3000
Enabled: 32 cores, 2 chips, 2 threads/core
Orderable: 1,2 chips
Cache L1: 32 KB I + 32 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 64 MB I+D on chip per chip,
16 MB shared / 4 cores
Other: None
Memory: 768 GB (24 x 32 GB 2Rx8 PC5-4800B-R)
Storage: 1 x 960 GB SATA SSD
Other: None

Software

OS: Ubuntu 22.04.1 LTS
Kernel 5.15.0-43-generic
Compiler: C/C++/Fortran: Version 4.0.0 of AOCC
Parallel: No
Firmware: Lenovo BIOS Version KAE105C 1.20 released Nov-2022
File System: ext4
System State: Run level 5 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: None
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage



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Test Date: Nov-2022

Hardware Availability: Feb-2023

Software Availability: Nov-2022

Results Table

Benchmark	Base								Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	64	414	246	412	247	413	247	64	414	246	412	247	413	247		
502.gcc_r	64	301	301	301	301	301	301	64	256	354	260	348	256	354		
505.mcf_r	64	197	525	198	523	198	522	64	198	523	197	524	198	523		
520.omnetpp_r	64	445	189	450	187	450	187	64	451	186	445	189	448	187		
523.xalancbmk_r	64	151	447	151	448	153	440	64	137	492	137	492	138	491		
525.x264_r	64	131	854	131	855	131	853	64	131	854	131	855	131	853		
531.deepsjeng_r	64	254	289	251	292	251	292	64	254	289	251	292	251	292		
541.leela_r	64	382	278	382	277	381	278	64	382	278	382	277	381	278		
548.exchange2_r	64	206	814	205	816	205	817	64	206	814	205	816	205	817		
557.xz_r	64	404	171	405	171	405	171	64	405	171	404	171	404	171		

SPECrate®2017_int_base = 354

SPECrate®2017_int_peak = 364

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Notes

The AMD64 AOCC Compiler Suite is available at
<http://developer.amd.com/amd-aocc/>

Submit Notes

The config file option 'submit' was used.
'numactl' was used to bind copies to the cores.
See the configuration file for details.

Operating System Notes

'ulimit -s unlimited' was used to set environment stack size limit
'ulimit -l 2097152' was used to set environment locked pages in memory limit

runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty_ratio=8' run as root.
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.
To free node-local memory and avoid remote memory usage,
'sysctl -w vm.zone_reclaim_mode=1' run as root.
To clear filesystem caches, 'sync; sysctl -w vm.drop_caches=3' run as root.
To disable address space layout randomization (ASLR) to reduce run-to-run
variability, 'sysctl -w kernel.randomize_va_space=0' run as root.

(Continued on next page)



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(3.00 GHz,AMD EPYC 9124)

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CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Nov-2022

Hardware Availability: Feb-2023

Software Availability: Nov-2022

Operating System Notes (Continued)

```
echo 0 > /proc/sys/kernel/numa_balancing
To enable Transparent Hugepages (THP) only on request for base runs,
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled' run as root.
To enable THP for all allocations for peak runs,
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and
'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
```

Environment Variables Notes

Environment variables set by runcpu before the start of the run:

```
LD_LIBRARY_PATH =
"/home/cpu2017-1.1.8-amd-aocc400-genoa-B1b/amd_rate_aocc400_genoa_B_lib/
lib:/home/cpu2017-1.1.8-amd-aocc400-genoa-B1b/amd_rate_aocc400_genoa_B_l
ib/lib32:"
MALLOC_CONF = "retain:true"
```

Environment variables set by runcpu during the 523.xalancbmk_r peak run:

```
MALLOC_CONF = "thp:never"
```

General Notes

Binaries were compiled on a system with 2x AMD EPYC 9174F CPU + 1.5TiB Memory using RHEL 8.6

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

Platform Notes

BIOS configuration:

Operating Mode set to Maximum Performance and then set it to Custom Mode
NUMA Nodes per Socket set to NPS4

Sysinfo program /home/cpu2017-1.1.8-amd-aocc400-genoa-B1b/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
running on perf Tue Nov 15 21:07:29 2022

SUT (System Under Test) info as seen by some common utilities.

(Continued on next page)



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Test Date: Nov-2022

Hardware Availability: Feb-2023

Software Availability: Nov-2022

Platform Notes (Continued)

For more information on this section, see
<https://www.spec.org/cpu2017/Docs/config.html#sysinfo>

From /proc/cpuinfo

model name : AMD EPYC 9124 16-Core Processor

2 "physical id"s (chips)

64 "processors"

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

cpu cores : 16

siblings : 32

physical 0: cores 0 1 2 3 10 11 16 17 18 19 24 25 26 27

physical 1: cores 0 1 2 3 10 11 16 17 18 19 24 25 26 27

From lscpu from util-linux 2.37.2:

Architecture:

x86_64

CPU op-mode(s):

32-bit, 64-bit

Address sizes:

52 bits physical, 57 bits virtual

Byte Order:

Little Endian

CPU(s):

64

On-line CPU(s) list:

0-63

Vendor ID:

AuthenticAMD

Model name:

AMD EPYC 9124 16-Core Processor

CPU family:

25

Model:

17

Thread(s) per core:

2

Core(s) per socket:

16

Socket(s):

2

Stepping:

1

Frequency boost:

enabled

CPU max MHz:

3713.0000

CPU min MHz:

400.0000

BogoMIPS:

5990.69

Flags:

fpu vme de pse tsc msr pae mce cx8 apic sep mtrr

pge mca cmov pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt

pdpe1gb rdtscp lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid

aperfmpperf rapl pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe

popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a

misalignsse 3dnowprefetch osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb

bpxt perfctr_llc mwaitx cpb cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba ibrs

ibpb stibp vmcall fsgsbase bmi1 avx2 smep bmi2 erms invpcid cqm rdt_a avx512f

avx512dq rdseed adx smap avx512ifma clflushopt clwb avx512cd sha_ni avx512bw

avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total

cqm_mbm_local avx512_bf16 clzero irperf xsaveerptr rdpru wbnoinvd amd_ppin cppc arat

npt lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists

pausefilter pfthreshold avic v_vmsave_vmload vgif v_spec_ctrl avx512vbmi umip pku

ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg avx512_vpopcntdq

(Continued on next page)



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CPU2017 License: 9017

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Tested by: Lenovo Global Technology

Test Date: Nov-2022

Hardware Availability: Feb-2023

Software Availability: Nov-2022

Platform Notes (Continued)

```
la57 rdpid overflow_recov succor smca fsm flush_lld
Virtualization: AMD-V
L1d cache: 1 MiB (32 instances)
L1i cache: 1 MiB (32 instances)
L2 cache: 32 MiB (32 instances)
L3 cache: 128 MiB (8 instances)
NUMA node(s): 8
NUMA node0 CPU(s): 0-3,32-35
NUMA node1 CPU(s): 4-7,36-39
NUMA node2 CPU(s): 8-11,40-43
NUMA node3 CPU(s): 12-15,44-47
NUMA node4 CPU(s): 16-19,48-51
NUMA node5 CPU(s): 20-23,52-55
NUMA node6 CPU(s): 24-27,56-59
NUMA node7 CPU(s): 28-31,60-63
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Mmio stale data: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Retpolines, IBPB conditional, IBRS_FW, STIBP always-on, RSB filling
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected
```

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	32K	1M	8	Data	1	64	1	64
L1i	32K	1M	8	Instruction	1	64	1	64
L2	1M	32M	8	Unified	2	2048	1	64
L3	16M	128M	16	Unified	3	16384	1	64

/proc/cpuinfo cache data

cache size : 1024 KB

From numactl --hardware

WARNING: a numactl 'node' might or might not correspond to a physical chip.

available: 8 nodes (0-7)

node 0 cpus: 0 1 2 3 32 33 34 35

node 0 size: 96380 MB

node 0 free: 95781 MB

node 1 cpus: 4 5 6 7 36 37 38 39

node 1 size: 96752 MB

(Continued on next page)



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Hardware Availability: Feb-2023

Software Availability: Nov-2022

Platform Notes (Continued)

```
node 1 free: 96168 MB
node 2 cpus: 8 9 10 11 40 41 42 43
node 2 size: 96752 MB
node 2 free: 96190 MB
node 3 cpus: 12 13 14 15 44 45 46 47
node 3 size: 96752 MB
node 3 free: 96093 MB
node 4 cpus: 16 17 18 19 48 49 50 51
node 4 size: 96719 MB
node 4 free: 96231 MB
node 5 cpus: 20 21 22 23 52 53 54 55
node 5 size: 96752 MB
node 5 free: 96255 MB
node 6 cpus: 24 25 26 27 56 57 58 59
node 6 size: 96752 MB
node 6 free: 96235 MB
node 7 cpus: 28 29 30 31 60 61 62 63
node 7 size: 96693 MB
node 7 free: 96209 MB
node distances:
node  0  1  2  3  4  5  6  7
0:  10 12 12 12 32 32 32 32
1:  12 10 12 12 32 32 32 32
2:  12 12 10 12 32 32 32 32
3:  12 12 12 10 32 32 32 32
4:  32 32 32 32 10 12 12 12
5:  32 32 32 32 12 10 12 12
6:  32 32 32 32 12 12 10 12
7:  32 32 32 32 12 12 12 10
```

From /proc/meminfo

MemTotal: 792122388 kB

HugePages_Total: 0

Hugepagesize: 2048 kB

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has
performance

/usr/bin/lsb_release -d
Ubuntu 22.04.1 LTS

From /etc/*release* /etc/*version*

debian_version: bookworm/sid

os-release:

PRETTY_NAME="Ubuntu 22.04.1 LTS"

NAME="Ubuntu"

VERSION_ID="22.04"

(Continued on next page)



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Platform Notes (Continued)

```
VERSION="22.04.1 LTS (Jammy Jellyfish)"
VERSION_CODENAME=jammy
ID=ubuntu
ID_LIKE=debian
HOME_URL="https://www.ubuntu.com/"
```

uname -a:

```
Linux perf 5.15.0-43-generic #46-Ubuntu SMP Tue Jul 12 10:30:17 UTC 2022 x86_64 x86_64
x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit):	Not affected
CVE-2018-3620 (L1 Terminal Fault):	Not affected
Microarchitectural Data Sampling:	Not affected
CVE-2017-5754 (Meltdown):	Not affected
mmio_stale_data:	Not affected
CVE-2018-3639 (Speculative Store Bypass):	Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2017-5753 (Spectre variant 1):	Mitigation: usercopy/swapgs barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2):	Mitigation: Retpolines, IBPB: conditional, IBRS_FW, STIBP: always-on, RSB filling
CVE-2020-0543 (Special Register Buffer Data Sampling):	Not affected
CVE-2019-11135 (TSX Asynchronous Abort):	Not affected

run-level 5 Nov 15 20:45

SPEC is set to: /home/cpu2017-1.1.8-amd-aocc400-genoa-B1b

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	ext4	878G	19G	814G	3%	/

From /sys/devices/virtual/dmi/id

```
Vendor:      Lenovo
Product:     ThinkSystem SR645 V3 MB, Genoa, DDR5, 0ahu, 1U
Product Family: ThinkSystem
Serial:      1234567890
```

Additional information from dmidecode 3.3 follows. WARNING: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

Memory:

24x SK Hynix HMC88AEBRA168N 32 GB 2 rank 4800

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

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ThinkSystem SR645 V3
(3.00 GHz, AMD EPYC 9124)

SPECrate®2017_int_base = 354

SPECrate®2017_int_peak = 364

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Nov-2022

Hardware Availability: Feb-2023

Software Availability: Nov-2022

Platform Notes (Continued)

BIOS:

BIOS Vendor: Lenovo
BIOS Version: KAE105C-1.20
BIOS Date: 11/04/2022
BIOS Revision: 1.20
Firmware Revision: 1.20

(End of data from sysinfo program)

Compiler Version Notes

C | 502.gcc_r(peak)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

C | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak)
| 525.x264_r(base, peak) 557.xz_r(base, peak)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

C | 502.gcc_r(peak)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

C | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak)
| 525.x264_r(base, peak) 557.xz_r(base, peak)

(Continued on next page)



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Compiler Version Notes (Continued)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on
LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

=====
C++ | 523.xalancbmk_r(peak)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on
LLVM Mirror.Version.14.0.6)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

=====
C++ | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base)
531.deepsjeng_r(base, peak) 541.leela_r(base, peak)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on
LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

=====
C++ | 523.xalancbmk_r(peak)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on
LLVM Mirror.Version.14.0.6)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

=====
C++ | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base)
531.deepsjeng_r(base, peak) 541.leela_r(base, peak)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on
LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix

(Continued on next page)



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Test Date: Nov-2022

Hardware Availability: Feb-2023

Software Availability: Nov-2022

Compiler Version Notes (Continued)

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

Fortran | 548.exchange2_r(base, peak)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)

Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Base Portability Flags

500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64

502.gcc_r: -DSPEC_LP64

505.mcf_r: -DSPEC_LP64

520.omnetpp_r: -DSPEC_LP64

523.xalancbmk_r: -DSPEC_LINUX -DSPEC_LP64

525.x264_r: -DSPEC_LP64

531.deepsjeng_r: -DSPEC_LP64

541.leela_r: -DSPEC_LP64

548.exchange2_r: -DSPEC_LP64

557.xz_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:

-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6

(Continued on next page)



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Test Date: Nov-2022

Hardware Availability: Feb-2023

Software Availability: Nov-2022

Base Optimization Flags (Continued)

C benchmarks (continued):

```
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-ldist-scalar-expand -fenable-aggressive-gather
-z muldefs -O3 -march=znver4 -fveclib=AMDLIBM -ffast-math
-fstruct-layout=7 -mllvm -unroll-threshold=50
-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining
-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lflang
-lamdalloc
```

C++ benchmarks:

```
-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -z muldefs -O3
-march=znver4 -fveclib=AMDLIBM -ffast-math
-mllvm -unroll-threshold=100 -finline-aggressive
-mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -zopt
-fvirtual-function-elimination -fvisibility=hidden -lamdlibm -lflang
-lamdalloc-ext
```

Fortran benchmarks:

```
-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -z muldefs -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fepilog-vectorization-of-inductions
-mllvm -optimize-strided-mem-cost -floop-transform
-mllvm -unroll-aggressive -mllvm -unroll-threshold=500 -lamdlibm
-lflang -lamdalloc
```

Base Other Flags

C benchmarks:

-Wno-unused-command-line-argument

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument



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Test Date: Nov-2022

Hardware Availability: Feb-2023

Software Availability: Nov-2022

Peak Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Peak Portability Flags

```
500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64
502.gcc_r: -D_FILE_OFFSET_BITS=64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LINUX -DSPEC_LP64
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64
```

Peak Optimization Flags

C benchmarks:

```
500.perlbench_r: basepeak = yes
```

```
502.gcc_r: -m32 -flto -z muldefs -Ofast -march=znver4
-fveclib=AMDLIBM -ffast-math -fstruct-layout=7
-mllvm -unroll-threshold=50 -fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -fgnu89-inline
-lamdaloc
```

```
505.mcf_r: -m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math
-fstruct-layout=7 -mllvm -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -lamdlibm
```

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Peak Optimization Flags (Continued)

505.mcf_r (continued):
-lflang -lamdalloc

525.x264_r: basepeak = yes

557.xz_r: Same as 505.mcf_r

C++ benchmarks:

520.omnetpp_r: -m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math
-finline-aggressive -mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -zopt
-fvirtual-function-elimination -fvisibility=hidden
-lamdlibm -lamdalloc-ext

523.xalancbmk_r: -m32 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-do-block-reorder=aggressive
-fno-loop-reroll -Ofast -march=znver4 -fveclib=AMDLIBM
-ffast-math -finline-aggressive
-mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -zopt
-mllvm -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden
-lamdalloc-ext

531.deepsjeng_r: basepeak = yes

541.leela_r: basepeak = yes

Fortran benchmarks:

548.exchange2_r: basepeak = yes

Peak Other Flags

C benchmarks (except as noted below):

-Wno-unused-command-line-argument

502.gcc_r: -L/usr/lib32 -Wno-unused-command-line-argument
-L/home/work/cpu2017/v118/aocc4/b1/rate/amd_rate_aocc400_genoa_B_lib/lib32

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Software Availability: Nov-2022

Peak Other Flags (Continued)

C++ benchmarks (except as noted below):

-Wno-unused-command-line-argument

523.xalancbmk_r: -L/usr/lib32 -Wno-unused-command-line-argument

-L/home/work/cpu2017/v118/aocc4/b1/rate/amd_rate_aocc400_genoa_B_lib/lib32

Fortran benchmarks:

-Wno-unused-command-line-argument

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/aocc400-flags.html>

<http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-Genoa-0.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/aocc400-flags.xml>

<http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-Genoa-0.xml>

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Tested with SPEC CPU®2017 v1.1.8 on 2022-11-15 16:07:29-0500.

Report generated on 2022-12-07 10:44:14 by CPU2017 PDF formatter v6442.

Originally published on 2022-12-06.



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ThinkSystem 7450 PRO Read Intensive NVMe PCIe 4.0 SSDs

Product Guide

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Updated
3 Nov 2023

Form Number
LP1590

PDF size
32 pages, 285 KB

Full Change History

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	Related publications and links
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	Trademarks

Abstract

The ThinkSystem 7450 PRO Read Intensive NVMe SSDs are general-purpose yet high-performance family of NVMe solid-state drives. They are engineered for greater performance and endurance in a cost-effective design, and to support a broader set of workloads. Now with SED encryption as standard, these drives help ensure data security, even when the drive is removed from the server.

This product guide provides essential presales information to understand the ThinkSystem 7450 PRO Read Intensive NVMe SSDs offerings and their key features, specifications, and compatibility. This guide is intended for technical specialists, sales specialists, sales engineers, IT architects, and other IT professionals who want to learn more about the 7450 PRO SSDs and consider their use in IT solutions.

Change History

Changes in the November 3, 2023 update:

- The following drives have been reactivated:
 - ThinkSystem 7mm U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD, 4XB7A82853
 - ThinkSystem 7mm U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD, 4XB7A82856
 - ThinkSystem 7mm U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD, 4XB7A82855

Introduction

The ThinkSystem 7450 PRO Read Intensive NVMe SSDs are general-purpose yet high-performance family of NVMe solid-state drives. They are engineered for greater performance and endurance in a cost-effective design, and to support a broader set of workloads. Now with SED encryption as standard, these drives help ensure data security, even when the drive is removed from the server.

SED support: All drives listed in this product guide include SED drive encryption. Our naming convention for new drives doesn't include SED in the name.





(/assets/images/LP1590/Micron%207450%207mm%20SSD.jpg)

Figure 1. ThinkSystem 7450 PRO Read Intensive NVMe SSDs

Did you know?

Lenovo Read Intensive (Entry) SSDs are suitable for read-intensive and general-purpose data center workloads, however their NVMe PCIe interface means the drives also offer high performance. Overall, these SSDs provide outstanding IOPS/watt and cost/IOPS for enterprise solutions.

Self-encrypting drives (SEDs) provide benefits by encrypting data on-the-fly at the drive level with no performance impact, by providing instant secure erasure thereby making the data no longer readable, and by enabling auto-locking to secure active data if a drive is misplaced or stolen from a system while in use. These features are essential for many businesses, especially those storing customer data.

Part number information

The following table lists the part numbers and feature codes for the 7450 PRO SSDs.

Table 1. Part number information

Part number	Feature	Description	Supplier model
2.5-inch hot-swap drives			
4XB7A79646	BNF3	ThinkSystem 2.5" U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	MTFDKCB960TFR-1BC15ABYY
4XB7A79647	BNF2	ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	MTFDKCB1T9TFR-1BC15ABYY
4XB7A79648	BNF5	ThinkSystem 2.5" U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	MTFDKCB3T8TFR-1BC15ABYY
4XB7A79649	BNF4	ThinkSystem 2.5" U.3 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	MTFDKCC7T6TFR-1BC15ABYY
4XB7A83097	BQAV	ThinkSystem 2.5" U.3 7450 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	MTFDKCC15T3TFR-1BC15ABYY
7mm hot-swap drives			
4XB7A82853	BPZ4	ThinkSystem 7mm U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	MTFDKCB960TFR-1BC15ABYY
4XB7A82855	BPZ5	ThinkSystem 7mm U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	MTFDKCB1T9TFR-1BC15ABYY
4XB7A82856	BPZ6	ThinkSystem 7mm U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	MTFDKCB3T8TFR-1BC15ABYY
7mm trayless drives			

Part number	Feature	Description	Supplier model
4XB7A13975	BKSQ	ThinkSystem 2.5" 7mm U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 Trayless SSD	MTFDKCB960TFR-1BC15ABYY
4XB7A13976	BKWR	ThinkSystem 2.5" 7mm U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 Trayless SSD	MTFDKCB1T9TFR-1BC15ABYY
4XB7A13977	BKWS	ThinkSystem 2.5" 7mm U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 Trayless SSD	MTFDKCB3T8TFR-1BC15ABYY
EDSFF E1.S 5.9mm hot-swap drives			
4XB7A13998	BP3L	ThinkSystem E1.S 5.9mm 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	MTFDKBZ3T8TFR-1BC15ABYY
4XB7A80499	BPKW	ThinkSystem E1.S 5.9mm 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	MTFDKBZ7T6TFR-1BC15ABYY
M.2 drives			
4XB7A82636	BS2P	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	MTFDKBA480TFR-1BC15ABYY
4XB7A13999	BKSR	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	MTFDKBA960TFR-1BC15ABYY
4XB7A14000	BKSS	ThinkSystem M.2 7450 PRO 1.92TB Read Intensive Entry NVMe PCIe 4.0 x4 NHS SSD	MTFDKBG1T9TFR-1BC15ABYY
4XB7A84604	BS2R	ThinkSystem M.2 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	MTFDKBG3T8TFR-1BC15ABYY
M.2 drives with heatsinks			
4XB7A83139	BSW6	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	MTFDKBA480TFR-1BC15ABYY
4XB7A82674	BQUJ	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	MTFDKBA960TFR-1BC15ABYY
4XB7A82675	BQUK	ThinkSystem M.2 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	MTFDKBG1T9TFR-1BC15ABYY
4XB7A82852	BRFZ	ThinkSystem M.2 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	MTFDKBG3T8TFR-1BC15ABYY

The part numbers include the following items:

- One solid-state drive
- Hot swap drives include a hot-swap tray
- Documentation flyer

Features

Non-Volatile Memory Express (NVMe) is PCIe high performance SSD technology that provides high I/O throughput and low latency. NVMe interfaces remove SAS/SATA bottlenecks and unleash all of the capabilities of contemporary NAND flash memory. Each NVMe PCI SSD has direct PCIe x4 connection, which provides at least 2x more bandwidth and 2x less latency than SATA/SAS-based SSD solutions. NVMe drives are also optimized for heavy multi-threaded workloads by using internal parallelism and many other improvements, such as enlarged I/O queues.

The ThinkSystem 7450 PRO Read Intensive NVMe SSDs have the following features:

- NVMe SSD with PCIe 4.0 performance and a U.3 interface
- Based on the Micron 7450 PRO family of SSDs
- Compliant with Trusted Computing Group Opal 2.01 Security Subsystem Class cryptographic standard (TCG Opal 2.01 SSC)



- Multiple form factors available:
 - 2.5-inch hot-swap drive tray
 - 7mm hot-swap drive tray (capacities up to 3.84 TB)
 - 7mm trayless (capacities up to 3.84 TB)
 - E1.S 5.9mm hot-swap drive
 - M.2 drives
 - 960GB and below: 2280
 - 1.92TB and above: 22110
- Micron 176-layer 3D TLC NAND
- Direct PCIe 4.0 x4 connection for each NVMe drive, resulting in up to 8 GBps overall throughput.
- Advanced ECC Engine and End-to-End Data Protection
- Protect data integrity from unexpected power loss with advanced power-loss protection architecture
- Adaptive Thermal Monitoring to monitor the internal temperature of the drive with power adjustment to ensure operation within thermal limits
- Supports Self-Monitoring, Analysis and Reporting Technology (S.M.A.R.T).
- Enterprise-level security features:
 - Secure Execution Environment - dedicated security processing hardware with physical isolation
 - Asymmetric Roots of Trust - Enables authenticated revocation of root keys
 - Strong Asymmetric Key Support - Uses standard, NIST-approved algorithms with 208-bit/3072-bit RSA keys
 - RSA Delegation Key Support - Enables customers to maintain ownership of RSA keys
 - Secure Boot - Helps ensure firmware integrity on running platform
 - Key-Based Firmware Update - Validates firmware using public key-based authentication prior to firmware update
 - Key-Based Privileged Access - Protects against unauthorized privileged SSD function execution with public key-based authorization

Read Intensive SSDs and Write Intensive SSDs have similar read IOPS performance, but the key difference between them is their endurance -- how long they can reliably perform write operations. Read Intensive SSDs have a better cost/IOPS ratio but lower endurance compared to Write Intensive SSDs. SSD write endurance is typically measured by the number of program/erase (P/E) write cycles that the drive incurs over its lifetime, listed as the total bytes of written data (TBW) in the device specification.

The TBW value assigned to a solid-state device is the total bytes of written data (based on the number of P/E cycles) that a drive can be guaranteed to complete (% of remaining P/E cycles = % of remaining TBW). Reaching this limit does not cause the drive to immediately fail. It simply denotes the maximum number of writes that can be guaranteed. A solid-state device will not fail upon reaching the specified TBW. At some point based on manufacturing variance margin, after surpassing the TBW value, the drive will reach the end-of-life point, at which the drive will go into a read-only mode.

Because of such behavior by Read Intensive solid-state drives, careful planning must be done to use them only in read-intensive or mixed use (70% read/30% write) environments to ensure that the TBW of the drive will not be exceeded before the required life expectancy.

For example, the 7450 PRO 1.92TB drive has an endurance of 3,500 TB of total bytes written (TBW). This means that for full operation over five years, write workload must be limited to no more than 1,918 GB of writes per day, which is equivalent to 1.0 full drive writes per day (DWPD). For the device to last three years, the drive write workload must be limited to no more than 3,196 GB of writes per day, which is equivalent to 1.7 full drive writes per day.

The benefits of drive encryption

All ThinkSystem 7450 PRO Read Intensive NVMe SSDs support drive encryption.

Self-encrypting drives (SEDs) provide benefits in three main ways:

- By encrypting data on-the-fly at the drive level with no performance impact
- By providing instant secure erasure (cryptographic erasure, thereby making the data no longer readable)
- By enabling auto-locking to secure active data if a drive is misplaced or stolen from a system while in use

The following sections describe the benefits in more details.

Automatic encryption

It is vital that a company keep its data secure. With the threat of data loss due to physical theft or improper inventory practices, it is important that the data be encrypted. However, challenges with performance, scalability, and complexity have led IT departments to push back against security policies that require the use of encryption. In addition, encryption has been viewed as risky by those unfamiliar with key management, a process for ensuring a company can always decrypt its own data. Self-encrypting drives comprehensively resolve these issues, making encryption both easy and affordable.

When the self-encrypting drive is in normal use, its owner need not maintain authentication keys (otherwise known as credentials or passwords) in order to access the data on the drive. The self-encrypting drive will encrypt data being written to the drive and decrypt data being read from it, all without requiring an authentication key from the owner.

Drive retirement and disposal

When hard drives are retired and moved outside the physically protected data center into the hands of others, the data on those drives is put at significant risk. IT departments retire drives for a variety of reasons, including:

- Returning drives for warranty, repair, or expired lease agreements
- Removal and disposal of drives
- Repurposing drives for other storage duties

Nearly all drives eventually leave the data center and their owner's control. Corporate data resides on such drives, and when most leave the data center, the data they contain is still readable. Even data that has been striped across many drives in a RAID array is vulnerable to data theft because just a typical single stripe in today's high-capacity arrays is large enough to expose for example, hundreds of names and bank account numbers.

In an effort to avoid data breaches and the ensuing customer notifications required by data privacy laws, companies use different methods to erase the data on retired drives before they leave the premises and potentially fall into the wrong hands. Current retirement practices that are designed to make data unreadable rely on significant human involvement in the process, and are thus subject to both technical and human failure.

The drawbacks of today's drive retirement practices include the following:

- Overwriting drive data is expensive, tying up valuable system resources for days. No notification of completion is generated by the drive, and overwriting won't cover reallocated sectors, leaving that data exposed.
- Methods that include degaussing or physically shredding a drive are expensive. It is difficult to ensure the degauss strength is optimized for the drive type, potentially leaving readable data on the drive. Physically shredding the drive is environmentally hazardous, and neither practice allows the drive to be returned for warranty or expired lease.
- Some companies have concluded the only way to securely retire drives is to keep them in their control, storing them indefinitely in warehouses. But this is not truly secure because a large volume of drives coupled with human involvement inevitably leads to some drives being lost or stolen.
- Professional disposal services is an expensive option and includes the cost of reconciling the services as well as internal reports and auditing. Transporting of the drives also has the potential of putting the data at risk.

Self-encrypting drives eliminate the need to overwrite, destroy, or store retired drives. When the drive is to be retired, it can be cryptographically erased, a process that is nearly instantaneous regardless of the capacity of the drive.

Instant secure erase

The self-encrypting drive provides instant data encryption key destruction via cryptographic erasure. When it is time to retire or repurpose the drive, the owner sends a command to the drive to perform a cryptographic erasure. Cryptographic erasure simply replaces the encryption key inside the encrypted drive, making it impossible to ever decrypt the data encrypted with the deleted key.

Self-encrypting drives reduce IT operating expenses by reducing asset control challenges and disposal costs. Data security with self-encrypting drives helps ensure compliance with privacy regulations without hindering IT efficiency. So called "Safe Harbor" clauses in government regulations allow companies to not have to notify customers of occurrences of data theft if that data was encrypted and therefore unreadable.

Furthermore, self-encrypting drives simplify decommissioning and preserve hardware value for returns and repurposing by:

- Eliminating the need to overwrite or destroy the drive
- Securing warranty returns and expired lease returns
- Enabling drives to be repurposed securely

Auto-locking

Insider theft or misplacement is a growing concern for businesses of all sizes; in addition, managers of branch offices and small businesses without strong physical security face greater vulnerability to external theft. Self-encrypting drives include a feature called auto-lock mode to help secure active data against theft.

Using a self-encrypting drive when auto-lock mode is enabled simply requires securing the drive with an authentication key. When secured in this manner, the drive's data encryption key is locked whenever the drive is powered down. In other words, the moment the self-encrypting drive is switched off or unplugged, it automatically locks down the drive's data.

When the self-encrypting drive is then powered back on, it requires authentication before being able to unlock its encryption key and read any data on the drive, thus protecting against misplacement and theft.

While using self-encrypting drives just for the instant secure erase is an extremely efficient and effective means to help securely retire a drive, using self-encrypting drives in auto-lock mode provides even more advantages. From the moment the drive or system is removed from the data center (with or without authorization), the drive is locked. No advance thought or action is required from the data center administrator to protect the data. This helps prevent a breach should the drive be mishandled and helps secure the data against the threat of insider or outside theft.

Technical specifications

The following tables present technical specifications for the ThinkSystem 7450 PRO Read Intensive NVMe SSDs.

- 2.5-inch and 7mm drives with U.3 interface
- E1.S drives
- M.2 drives

Table 2. Technical specifications for U.3 drives - 2.5-inch and 7mm drive form factors

Feature	960 GB drive	1.92 TB drive	3.84 TB drive	7.68 TB drive	15.36 TB drive
Interface	PCIe 4.0 x4	PCIe 4.0 x4	PCIe 4.0 x4	PCIe 4.0 x4	PCIe 4.0 x4
Capacity	960 GB	1.92 TB	3.84 TB	7.68 TB	15.36 TB
SED encryption	TCG Opal	TCG Opal	TCG Opal	TCG Opal	TCG Opal
Endurance (drive writes per day for 5 years)	1.0 DWPD	1.0 DWPD	1.0 DWPD	1.0 DWPD	1.0 DWPD
Endurance (total bytes written)	1700 TB	3500 TB	7000 TB	14,000 TB	28,000 TB
Data reliability (UBER)	< 1 in 10 ¹⁷ bits read	< 1 in 10 ¹⁷ bits read	< 1 in 10 ¹⁷ bits read	< 1 in 10 ¹⁷ bits read	< 1 in 10 ¹⁷ bits read
MTBF	2,000,000 hours	2,000,000 hours	2,000,000 hours	2,000,000 hours	2,000,000 hours
IOPS reads (4 KB blocks)	530,000	800,000	1,000,000	1,000,000	1,000,000
IOPS writes (4 KB blocks)	85,000	120,000	180,000	215,000	250,000
Sequential read rate (128 KB blocks)	6800 MBps	6800 MBps	6800 MBps	6800 MBps	6800 MBps
Sequential write rate (128 KB blocks)	1400 MBps	2700 MBps	5300 MBps	5600 MBps	5600 MBps
Latency (random R/W)	80 µs / 15 µs	80 µs / 15 µs	80 µs / 15 µs	80 µs / 15 µs	80 µs / 15 µs
Typical power (R/W)	10.0 / 7.0 W	10.1 / 9.1 W	10.5 / 14.0 W	12.2 / 15.0 W	12.2 / 15.0 W

Table 3. Technical specifications for E1.S drives

Feature	3.84 TB drive	7.68 TB drive
Interface	PCIe 4.0 x4	PCIe 4.0 x4
Capacity	3.84 TB	7.68 TB
SED encryption	TCG Opal	TCG Opal
Endurance (drive writes per day for 5 years)	1.0 DWPD	1.0 DWPD
Endurance (total bytes written)	7000 TB	14,000 TB
Data reliability (UBER)	< 1 in 10 ¹⁷ bits read	< 1 in 10 ¹⁷ bits read
MTBF	2,000,000 hours	2,000,000 hours
IOPS reads (4 KB blocks)	1,000,000	1,000,000
IOPS writes (4 KB blocks)	180,000	215,000
Sequential read rate (128 KB blocks)	6800 MBps	6800 MBps
Sequential write rate (128 KB blocks)	4000 MBps	4000 MBps
Latency (random R/W)	80 µs / 15 µs	80 µs / 15 µs
Typical power (R/W)	12.0 / 12.0 W	12.0 / 12.0 W

Table 4. Technical specifications for M.2 drives

Feature	480 GB drive	960 GB drive	1.92 TB drive	3.84 TB drive
Form factor	M.2 2280	M.2 2280	M.2 22110	M.2 22110
Interface	PCIe 4.0 x4	PCIe 4.0 x4	PCIe 4.0 x4	PCIe 4.0 x4
Capacity	480 GB	960 GB	1.92 TB	3.84 TB
SED encryption	TCG Opal	TCG Opal	TCG Opal	TCG Opal
Endurance (drive writes per day for 5 years)	0.9 DWPD	1.0 DWPD	1.0 DWPD	1.0 DWPD
Endurance (total bytes written)	800 TB	1700 TB	3500 TB	7000 TB
Data reliability (UBER)	< 1 in 10 ¹⁷ bits read	< 1 in 10 ¹⁷ bits read	< 1 in 10 ¹⁷ bits read	< 1 in 10 ¹⁷ bits read
MTBF	2,000,000 hours	2,000,000 hours	2,000,000 hours	2,000,000 hours
IOPS reads (4 KB blocks)	280,000	520,000	735,000	735,000
IOPS writes (4 KB blocks)	40,000	82,000	120,000	160,000
Sequential read rate (128 KB blocks)	5000 MBps	5000 MBps	5000 MBps	5000 MBps
Sequential write rate (128 KB blocks)	700 MBps	1400 MBps	2400 MBps	2500 MBps
Latency (random R/W)	80 µs / 30 µs	80 µs / 15 µs	80 µs / 15 µs	80 µs / 15 µs
Typical power (R/W)	7.0 / 4.5 W	7.0 / 5.7 W	7.3 / 7.5 W	8.2 / 8.2 W

Server support

The following tables list the ThinkSystem servers that are compatible.

Table 5. Server support (Part 1 of 4)

Part Number	Description	2S AMD V3				2S Intel V3			4S 8S Intel V3		Multi Node		GPU Rich				1S V3				
		SR635 V3 (7D9G)	SR655 V3 (7D9E)	SR645 V3 (7D9D)	SR665 V3 (7D9B)	ST650 V3 (7D7B)	SR630 V3 (7D72)	SR650 V3 (7D75)	SR850 V3 (7D97)	SR860 V3 (7D94)	SR950 V3 (7DC5)	SD535 V3 (7DD8)	SD530 V3 (7DDA)	SD550 V3 (7DD9)	SR670 V2 (7Z22)	SR675 V3 (7D9Q)	SR680a V3 (7DHE)	SR685a V3 (7DHC)	ST250 V3 (7DCF)	SR250 V3 (7DCM)	
2.5-inch hot-swap drives																					
4XB7A79646	ThinkSystem 2.5" U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	N	Y	Y	Y	N	N	N	N	
4XB7A79647	ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	N	Y	Y	Y	N	N	N	N	
4XB7A79648	ThinkSystem 2.5" U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	N	Y	Y	Y	N	N	N	N	
4XB7A79649	ThinkSystem 2.5" U.3 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	N	Y	Y	Y	N	N	N	N	
4XB7A83097	ThinkSystem 2.5" U.3 7450 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	Y	Y	Y	N	Y	Y	N	N	N	N	N	N	Y	N	N	N	N	N	
7mm hot-swap drives																					
4XB7A82853	ThinkSystem 7mm U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	
4XB7A82855	ThinkSystem 7mm U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	
4XB7A82856	ThinkSystem 7mm U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	
7mm trayless drives																					
4XB7A13975	ThinkSystem 2.5" 7mm U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 Trayless SSD	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
4XB7A13976	ThinkSystem 2.5" 7mm U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 Trayless SSD	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
4XB7A13977	ThinkSystem 2.5" 7mm U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 Trayless SSD	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
EDSFF E1.S 5.9mm hot-swap drives																					
4XB7A13998	ThinkSystem E1.S 5.9mm 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	N	Y	N	N	Y	N	N	N	N	N	N	N	Y	Y	N	N	N	N	
4XB7A80499	ThinkSystem E1.S 5.9mm 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	N	Y	N	N	Y	N	N	N	N	N	N	N	Y	Y	N	N	N	N	
M.2 drives without heatsinks																					
4XB7A82636	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	N	Y	N	N	N	N	N	
4XB7A13999	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N	N	N	
4XB7A14000	ThinkSystem M.2 7450 PRO 1.92TB Read Intensive Entry NVMe PCIe 4.0 x4 NHS SSD	N	N	N	N	N	N	N	N	N	N	Y	Y	N	Y	Y	N	N	N	N	

Part Number	Description	2S AMD V3				2S Intel V3			4S 8S Intel V3		Multi Node		GPU Rich				1S V3			
		SR635 V3 (7D9H / 7D9G)	SR655 V3 (7D9F / 7D9E)	SR645 V3 (7D9D / 7D9C)	SR665 V3 (7D9B / 7D9A)	ST650 V3 (7D7B / 7D7A)	SR630 V3 (7D72 / 7D73)	SR650 V3 (7D75 / 7D76)	SR850 V3 (7D97 / 7D96)	SR860 V3 (7D94 / 7D93)	SR950 V3 (7DC5 / 7DC4)	SD535 V3 (7DD8 / 7DD1)	SD530 V3 (7DDA / 7DD3)	SD550 V3 (7DD9 / 7DD2)	SR670 V2 (7Z22 / 7Z23)	SR675 V3 (7D9Q / 7D9R)	SR680a V3 (7DHE)	SR685a V3 (7DHC)	ST250 V3 (7DCF / 7DCE)	SR250 V3 (7DCM / 7DCL)
4XB7A84604	ThinkSystem M.2 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N
M.2 drives with heatsinks																				
4XB7A83139	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	N	N	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N	N	N
4XB7A82674	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	N	N	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N	N	N
4XB7A82675	ThinkSystem M.2 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	N	N	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N	N	N
4XB7A82852	ThinkSystem M.2 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Table 6. Server support (Part 2 of 4)

Part Number	Description	Edge			Super Computing					1S Intel V2		2S Intel V2					
		SE350 (7Z46 / 7D1X)	SE350 V2 (7DA9)	SE360 V2 (7DAM)	SE450 (7D8T)	SE455 V3 (7DBY)	SD665 V3 (7D9P)	SD665-N V3 (7DAZ)	SD650 V3 (7D7M)	SD650-I V3 (7D7L)	SD650-N V3 (7D7N)	ST50 V2 (7D8K / 7D8J)	ST250 V2 (7D8G / 7D8F)	SR250 V2 (7D7R / 7D7Q)	ST650 V2 (7Z75 / 7Z74)	SR630 V2 (7Z70 / 7Z71)	SR650 V2 (7Z72 / 7Z73)
2.5-inch hot-swap drives																	
4XB7A79646	ThinkSystem 2.5" U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	N	N	N	Y	N	N	N	N	N	N	N	N	Y	Y	Y
4XB7A79647	ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	Y	N	Y	Y	N	N	N	N	N	N	N	N	Y	Y	Y
4XB7A79648	ThinkSystem 2.5" U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	Y	N	Y	Y	N	N	N	N	N	N	N	N	Y	Y	Y
4XB7A79649	ThinkSystem 2.5" U.3 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	Y	N	N	Y	N	N	N	N	N	N	N	N	Y	Y	Y
4XB7A83097	ThinkSystem 2.5" U.3 7450 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y
7mm hot-swap drives																	



Part Number	Description	Edge			Super Computing							15 Intel V2			25 Intel V2		
		SE350 (7Z46 / 7D1X)	SE350 V2 (7DA9)	SE360 V2 (7DAM)	SE450 (7D8T)	SE455 V3 (7DBY)	SD665 V3 (7D9P)	SD665-N V3 (7DAZ)	SD650 V3 (7D7M)	SD650-1 V3 (7D7L)	SD650-N V3 (7D7N)	ST150 V2 (7D8K / 7D8J)	ST250 V2 (7D8G / 7D8F)	SR250 V2 (7D7R / 7D7Q)	ST650 V2 (7Z75 / 7Z74)	SR630 V2 (7Z70 / 7Z71)	SR650 V2 (7Z72 / 7Z73)
4XB7A82853	ThinkSystem 7mm U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	Y	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	
4XB7A82855	ThinkSystem 7mm U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	Y	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	
4XB7A82856	ThinkSystem 7mm U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	Y	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	
7mm trayless drives																	
4XB7A13975	ThinkSystem 2.5" 7mm U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 Trayless SSD	N	N	N	Y	N	Y	Y	Y	Y	N	N	N	N	N	N	
4XB7A13976	ThinkSystem 2.5" 7mm U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 Trayless SSD	N	N	N	Y	N	Y	Y	Y	Y	N	N	N	N	N	N	
4XB7A13977	ThinkSystem 2.5" 7mm U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 Trayless SSD	N	N	N	Y	N	Y	Y	Y	Y	N	N	N	N	N	N	
EDSFF E1.S 5.9mm hot-swap drives																	
4XB7A13998	ThinkSystem E1.S 5.9mm 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	
4XB7A80499	ThinkSystem E1.S 5.9mm 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	
M.2 drives without heatsinks																	
4XB7A82636	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	N	N	N	Y	Y	N	N	N	N	Y	N	N	Y	Y	Y	
4XB7A13999	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	
4XB7A14000	ThinkSystem M.2 7450 PRO 1.92TB Read Intensive Entry NVMe PCIe 4.0 x4 NHS SSD	N	N	N	Y	N	Y	Y	Y	Y	N	N	N	Y	Y	Y	
4XB7A84604	ThinkSystem M.2 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	N	N	N	Y	N	N	N	N	N	N	N	N	Y	Y	Y	
M.2 drives with heatsinks																	
4XB7A83139	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	
4XB7A82674	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	
4XB7A82675	ThinkSystem M.2 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	
4XB7A82852	ThinkSystem M.2 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	

Table 7. Server support (Part 3 of 4)

Part Number	Description	AMD V1				Dense V2				4S V2	8S	4S V1	15 Intel V1							
		SR635 (7Y98 / 7Y99)	SR655 (7Y00 / 7Z01)	SR655 Client OS	SR645 (7D2Y / 7D2X)	SR665 (7D2W / 7D2V)	SD630 V2 (7D1K)	SD650 V2 (7D1M)	SD650-N V2 (7D1N)	SN550 V2 (7Z69)	SR850 V2 (7D31 / 7D32)	SR860 V2 (7Z59 / 7Z60)	SR950 (7X11 / 7X12)	SR850 (7X18 / 7X19)	SR850P (7D2F / 2D2G)	SR860 (7X69 / 7X70)	ST50 (7Y48 / 7Y50)	ST250 (7Y45 / 7Y46)	SR150 (7Y54)	SR250 (7Y52 / 7Y51)
2.5-inch hot-swap drives																				
4XB7A79646	ThinkSystem 2.5" U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	N	N	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	N	N	N	N
4XB7A79647	ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	N	N	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	N	N	N	N
4XB7A79648	ThinkSystem 2.5" U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	N	N	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	N	N	N	N
4XB7A79649	ThinkSystem 2.5" U.3 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	N	N	N	N
4XB7A83097	ThinkSystem 2.5" U.3 7450 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	N	N	N	N
7mm hot-swap drives																				
4XB7A82853	ThinkSystem 7mm U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	N	N	Y	Y	Y	N	N	N	Y	Y	N	N	N	N	N	N	N	N
4XB7A82855	ThinkSystem 7mm U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	N	N	Y	Y	Y	N	N	N	Y	Y	N	N	N	N	N	N	N	N
4XB7A82856	ThinkSystem 7mm U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	N	N	Y	Y	Y	N	N	N	Y	Y	N	N	N	N	N	N	N	N
7mm trayless drives																				
4XB7A13975	ThinkSystem 2.5" 7mm U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 Trayless SSD	N	N	N	N	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N
4XB7A13976	ThinkSystem 2.5" 7mm U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 Trayless SSD	N	N	N	N	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N
4XB7A13977	ThinkSystem 2.5" 7mm U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 Trayless SSD	N	N	N	N	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N
EDSFF E1.S 5.9mm hot-swap drives																				
4XB7A13998	ThinkSystem E1.S 5.9mm 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A80499	ThinkSystem E1.S 5.9mm 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
M.2 drives without heatsinks																				
4XB7A82636	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	N	N	N	Y	Y	N	N	N	N	N	Y	N	N	N	N	N	N	N	N
4XB7A13999	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	N	N	N	Y	Y	N	N	N	N	N	Y	N	N	N	N	N	N	N	N
4XB7A14000	ThinkSystem M.2 7450 PRO 1.92TB Read Intensive Entry NVMe PCIe 4.0 x4 NHS SSD	N	N	N	Y	Y	N	N	N	N	N	Y	N	N	N	N	N	N	N	N
4XB7A84604	ThinkSystem M.2 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	N	N	N	Y	Y	N	N	N	N	N	Y	N	N	N	N	N	N	N	N

Part Number	Description	AMD V1				Dense V2				4S V2	8S	4S V1		1S Intel V1						
		SR635 (7Y98 / 7Y99)	SR655 (7Y00 / 7Z01)	SR655 Client OS	SR645 (7D2Y / 7D2X)	SR665 (7D2W / 7D2V)	SD630 V2 (7D1K)	SD650 V2 (7D1M)	SD650-N V2 (7D1N)	SN550 V2 (7Z69)	SR850 V2 (7D31 / 7D32)	SR860 V2 (7Z59 / 7Z60)	SR950 (7X11 / 7X12)	SR850 (7X18 / 7X19)	SR850P (7D2F / 2D2G)	SR860 (7X69 / 7X70)	ST50 (7Y48 / 7Y50)	ST250 (7Y45 / 7Y46)	SR150 (7Y54)	SR250 (7Y52 / 7Y51)
M.2 drives with heatsinks																				
4XB7A83139	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A82674	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A82675	ThinkSystem M.2 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A82852	ThinkSystem M.2 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Table 8. Server support (Part 4 of 4)

Part Number	Description	2S Intel V1								Dense V1			
		ST550 (7X09 / 7X10)	SR530 (7X07 / 7X08)	SR550 (7X03 / 7X04)	SR570 (7Y02 / 7Y03)	SR590 (7X98 / 7X99)	SR630 (7X01 / 7X02)	SR650 (7X05 / 7X06)	SR670 (7Y36 / 7Y37)	SD530 (7X21)	SD650 (7X58)	SN550 (7X16)	SN650 (7Y15)
2.5-inch hot-swap drives													
4XB7A79646	ThinkSystem 2.5" U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	N	N	Y	Y	Y	Y	N	Y	N	N	Y
4XB7A79647	ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	N	N	Y	Y	Y	Y	N	Y	N	N	Y
4XB7A79648	ThinkSystem 2.5" U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	N	N	Y	Y	Y	Y	N	Y	N	N	Y
4XB7A79649	ThinkSystem 2.5" U.3 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	N	N	Y	Y	Y	Y	N	Y	N	N	Y
4XB7A83097	ThinkSystem 2.5" U.3 7450 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	Y	N	N	Y	Y	Y	Y	N	Y	N	N	Y
7mm hot-swap drives													
4XB7A82853	ThinkSystem 7mm U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A82855	ThinkSystem 7mm U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	N	N	N	N	N	N	N	N	N	N	N

Part Number	Description	25 Intel V1								Dense V1			
		ST550 (7X09 / 7X10)	SR530 (7X07 / 7X08)	SR550 (7X03 / 7X04)	SR570 (7Y02 / 7Y03)	SR590 (7X98 / 7X99)	SR630 (7X01 / 7X02)	SR650 (7X05 / 7X06)	SR670 (7Y36 / 7Y37)	SD530 (7X21)	SD650 (7X58)	SN550 (7X16)	SN850 (7X15)
4XB7A82856	ThinkSystem 7mm U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	N	N	N	N	N	N	N	N	N	N	N
7mm trayless drives													
4XB7A13975	ThinkSystem 2.5" 7mm U.3 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 Trayless SSD	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A13976	ThinkSystem 2.5" 7mm U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 Trayless SSD	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A13977	ThinkSystem 2.5" 7mm U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 Trayless SSD	N	N	N	N	N	N	N	N	N	N	N	N
EDSFF E1.S 5.9mm hot-swap drives													
4XB7A13998	ThinkSystem E1.S 5.9mm 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A80499	ThinkSystem E1.S 5.9mm 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	N	N	N	N	N	N	N	N	N	N	N	N
M.2 drives without heatsinks													
4XB7A82636	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A13999	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A14000	ThinkSystem M.2 7450 PRO 1.92TB Read Intensive Entry NVMe PCIe 4.0 x4 NHS SSD	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A84604	ThinkSystem M.2 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	N	N	N	N	N	N	N	N	N	N	N	N
M.2 drives with heatsinks													
4XB7A83139	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A82674	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A82675	ThinkSystem M.2 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A82852	ThinkSystem M.2 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 NHS SSD (with Heatsink)	N	N	N	N	N	N	N	N	N	N	N	N

Storage controller support

NVMe PCIe SSDs require a NVMe drive backplane and some form of PCIe connection to processors. PCIe connections can take the form of either an adapter (PCIe Interposer or PCIe extender) or simply a cable that connects to an onboard NVMe connector.

Consult the relevant server product guide for details about required components for NVMe drive support.



Operating system support

The following tables list the supported operating systems:

- ThinkSystem 2.5" U.3 7400 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD, 4XB7A80378
- ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD, 4XB7A79647

Tip: These tables are automatically generated based on data from Lenovo ServerProven (<https://www.lenovo.com/us/en/serverproven/>).

VMware vSAN certification: The drives listed in this product guide are VMware vSAN certified, however in the VMware Compatibility Guide (<https://www.vmware.com/resources/compatibility>) (VCG), they are listed under the drive vendor company name instead of Lenovo. To check a drive for vSAN certification, search the VCG using the Supplier part number as listed in Table 1 in the Part number information section.

Table 9. Operating system support for ThinkSystem 2.5" U.3 7400 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD, 4XB7A80378

Operating systems	SE450
Microsoft Windows Server 2019	Y
Microsoft Windows Server 2022	Y
Red Hat Enterprise Linux 7.9	Y
Red Hat Enterprise Linux 8.4	Y
Red Hat Enterprise Linux 8.5	Y
Red Hat Enterprise Linux 8.6	Y
Red Hat Enterprise Linux 8.7	Y
Red Hat Enterprise Linux 8.8	Y
Red Hat Enterprise Linux 8.9	Y
Red Hat Enterprise Linux 9.0	Y
Red Hat Enterprise Linux 9.1	Y
Red Hat Enterprise Linux 9.2	Y
Red Hat Enterprise Linux 9.3	Y
Red Hat Enterprise Linux 9.4	Y
SUSE Linux Enterprise Server 15 SP4	Y
SUSE Linux Enterprise Server 15 SP5	Y
Ubuntu 18.04.6 LTS	Y
Ubuntu 20.04.5 LTS	Y
Ubuntu 22.04 LTS	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y
VMware vSphere Hypervisor (ESXi) 8.0	Y
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y

Table 10. Operating system support for ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD, 4XB7A79647 (Part 1 of 4)



	SE350 V2	SE450	SE455 V3	SD550 V3	SR630 V3 (4th Gen Xeon)	SR630 V3 (5th Gen Xeon)	SR635 V3	SR645 V3	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR655 V3	SR665 V3	SR675 V3	SR850 V3	SR860 V3
Operating systems															
Microsoft Windows 10	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N
Microsoft Windows 11	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N
Microsoft Windows Server 2012 R2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server 2016	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server 2019	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server version 1709	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server version 1803	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 6.10	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 6.9	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.5	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.6	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.7	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.8	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.9	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.4	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.5	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.6	Y	Y	Y	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	N	Y	N	N	Y ¹	N	Y	Y	Y ¹	N	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.0	Y	Y	Y	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	N	Y	N	N	Y ¹	N	Y	Y	Y ¹	N	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.3	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.4	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 11 SP4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP5	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Operating systems	SE350 V2	SE450	SE455 V3	SD550 V3	SR630 V3 (4th Gen Xeon)	SR630 V3 (5th Gen Xeon)	SR635 V3	SR645 V3	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR655 V3	SR665 V3	SR675 V3	SR850 V3	SR860 V3
SUSE Linux Enterprise Server 15	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP4	Y	Y	Y	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 18.04.5 LTS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 18.04.6 LTS	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04 LTS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04.5 LTS	Y	Y	Y	N	N	N	Y	Y	N	N	Y	Y	Y	Y	Y
Ubuntu 22.04 LTS	Y	Y	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y
Ubuntu 22.04.2 LTS	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04.3 LTS	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 24.04 LTS	N	N	N	N	N	N	N	Y	Y	Y	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.0 U3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5 U1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5 U2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5 U3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 7.0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 7.0 U1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 7.0 U2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0	N	Y	N	N	Y	N	Y	Y	Y	N	Y	Y	N	N	N
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	Y	Y	N	Y ²	N	Y	Y	Y ²	N	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

¹ For limitation, please refer Support Tip TT1154 (<https://datacentersupport.lenovo.com/tw/en/solutions/tt1154>)

² For limitation, please refer Support Tip TT1154 (<https://datacentersupport.lenovo.com/tw/en/solutions/tt1154>), Support Tip 104278 (<https://datacentersupport.lenovo.com/tw/en/solutions/104278>)

Table 11. Operating system support for ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD, 4XB7A79647 (Part 2 of 4)

Operating systems	SD630 V2	SN550 V2	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SR860 V2	ST650 V2	SR635	SR645	SR655	SR665
Microsoft Windows 10	N	N	N	N	N	N	N	N	N	N	Y ²	N
Microsoft Windows 11	N	N	N	N	N	N	N	N	N	N	Y	N
Microsoft Windows Server 2012 R2	N	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server 2016	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server version 1709	N	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server version 1803	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 6.10	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 6.9	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.3	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.4	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.5	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.6	N	N	N	N	N	N	N	N	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 7.7	N	N	N	N	N	N	N	N	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 7.8	N	N	N	N	N	N	N	N	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 7.9	Y	Y	Y	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 8.0	N	N	N	N	N	N	N	N	Y ¹	N	Y ¹	N
Red Hat Enterprise Linux 8.1	N	N	N	N	N	N	N	N	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 8.2	Y	Y	Y	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 8.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.4	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 11 SP4	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP2	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP3	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP4	N	N	N	N	N	N	N	N	Y ¹	N	Y ¹	N
SUSE Linux Enterprise Server 12 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP1	N	N	N	N	N	N	N	N	Y ¹	Y ¹	Y ¹	Y ¹
SUSE Linux Enterprise Server 15 SP2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

	SD630 V2	SN550 V2	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SR860 V2	ST650 V2	SR635	SR645	SR655	SR665
Operating systems												
SUSE Linux Enterprise Server 15 SP3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 18.04.5 LTS	Y	Y	Y	Y	Y	N	N	Y	N	N	N	N
Ubuntu 18.04.6 LTS	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04 LTS	N	N	Y	Y	N	N	N	N	N	N	N	N
Ubuntu 20.04.5 LTS	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04 LTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 22.04.2 LTS	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04.3 LTS	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 24.04 LTS	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.0 U3	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5 U1	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5 U2	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5 U3	N	N	N	N	N	N	N	N	Y ¹	N	Y ¹	N
VMware vSphere Hypervisor (ESXi) 6.7	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U1	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U2	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U3	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0	N	N	N	N	N	N	N	N	Y ¹	Y ¹	Y ¹	Y ¹
VMware vSphere Hypervisor (ESXi) 7.0 U1	N	N	N	N	N	Y	Y	N	Y ¹	Y	Y ¹	Y
VMware vSphere Hypervisor (ESXi) 7.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

¹ The OS is not supported with EPYC 7003 processors.

² ISG will not sell/preload this OS, but compatibility and cert only.

Table 12. Operating system support for ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD, 4XB7A79647 (Part 3 of 4)

	SD530 (Xeon Gen 2)	SN550 (Xeon Gen 2)	SN850 (Xeon Gen 2)	SR570 (Xeon Gen 2)	SR590 (Xeon Gen 2)	SR630 (Xeon Gen 2)	SR650 (Xeon Gen 2)	SR850 (Xeon Gen 2)	SR850P (Xeon Gen 2)	SR860 (Xeon Gen 2)	SR950 (Xeon Gen 2)	ST550 (Xeon Gen 2)
Operating systems												
Microsoft Windows 10	N	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows 11	N	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server 2012 R2	N	N	N	N	N	N	N	N	N	N	N	N



	SD530 (Xeon Gen 2)	SN550 (Xeon Gen 2)	SN850 (Xeon Gen 2)	SR570 (Xeon Gen 2)	SR590 (Xeon Gen 2)	SR630 (Xeon Gen 2)	SR650 (Xeon Gen 2)	SR850 (Xeon Gen 2)	SR850P (Xeon Gen 2)	SR860 (Xeon Gen 2)	SR950 (Xeon Gen 2)	ST550 (Xeon Gen 2)
Operating systems												
Microsoft Windows Server 2016	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server version 1709	N	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server version 1803	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 6.10	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 6.9	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.3	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.4	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.5	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.4	N	N	N	N	N	N	N	N	N	N	Y	Y
SUSE Linux Enterprise Server 11 SP4	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP2	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP3	N	N	N	N	N	N	N	N	Y	N	N	N
SUSE Linux Enterprise Server 12 SP4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

	SD530 (Xeon Gen 2)	SN550 (Xeon Gen 2)	SN850 (Xeon Gen 2)	SR570 (Xeon Gen 2)	SR590 (Xeon Gen 2)	SR630 (Xeon Gen 2)	SR650 (Xeon Gen 2)	SR850 (Xeon Gen 2)	SR850P (Xeon Gen 2)	SR860 (Xeon Gen 2)	SR950 (Xeon Gen 2)	ST550 (Xeon Gen 2)
Operating systems												
SUSE Linux Enterprise Server 15 SP3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 18.04.5 LTS	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 18.04.6 LTS	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04 LTS	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04.5 LTS	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04 LTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 22.04.2 LTS	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04.3 LTS	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 24.04 LTS	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.0 U3	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5 U1	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 13. Operating system support for ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD, 4XB7A79647
(Part 4 of 4)

	SD530 (Xeon Gen 1)	SN550 (Xeon Gen 1)	SN850 (Xeon Gen 1)	SR570 (Xeon Gen 1)	SR590 (Xeon Gen 1)	SR630 (Xeon Gen 1)	SR650 (Xeon Gen 1)	SR850 (Xeon Gen 1)	SR860 (Xeon Gen 1)	SR950 (Xeon Gen 1)	ST550 (Xeon Gen 1)
Operating systems											
Microsoft Windows 10	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows 11	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server 2012 R2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

	SD530 (Xeon Gen 1)	SN550 (Xeon Gen 1)	SN850 (Xeon Gen 1)	SR570 (Xeon Gen 1)	SR590 (Xeon Gen 1)	SR630 (Xeon Gen 1)	SR650 (Xeon Gen 1)	SR850 (Xeon Gen 1)	SR860 (Xeon Gen 1)	SR950 (Xeon Gen 1)	ST550 (Xeon Gen 1)
Operating systems											
Microsoft Windows Server 2016	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server version 1709	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server version 1803	Y	Y	N	N	N	Y	Y	Y	Y	Y	N
Red Hat Enterprise Linux 6.10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 6.9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.3	Y	Y	Y	N	N	Y	Y	Y	N	Y	Y
Red Hat Enterprise Linux 7.4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 9.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.3	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 9.4	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 11 SP4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP2	Y	N	Y	N	N	Y	Y	Y	N	Y	Y
SUSE Linux Enterprise Server 12 SP3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

	SD530 (Xeon Gen 1)	SN550 (Xeon Gen 1)	SN850 (Xeon Gen 1)	SR570 (Xeon Gen 1)	SR590 (Xeon Gen 1)	SR630 (Xeon Gen 1)	SR650 (Xeon Gen 1)	SR850 (Xeon Gen 1)	SR860 (Xeon Gen 1)	SR950 (Xeon Gen 1)	ST550 (Xeon Gen 1)
Operating systems											
SUSE Linux Enterprise Server 15 SP4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 18.04.5 LTS	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 18.04.6 LTS	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04 LTS	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04.5 LTS	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04 LTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 22.04.2 LTS	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04.3 LTS	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 24.04 LTS	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5	Y	Y	Y	N	N	Y	Y	Y	N	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

IBM SKLM Key Management support

To effectively manage a large deployment of SEDs in Lenovo servers, IBM Security Key Lifecycle Manager (SKLM) offers a centralized key management solution. Certain Lenovo servers support Features on Demand (FoD) license upgrades that enable SKLM support.

The following table lists the part numbers and feature codes to enable SKLM support in the management processor of the server.

Table 14. FoD upgrades for SKLM support

Part number	Feature code	Description
Security Key Lifecycle Manager - FoD (United States, Canada, Asia Pacific, and Japan)		
00D9998	A5U1	SKLM for System x/ThinkSystem w/SEDs - FoD per Install w/1Yr S&S
00D9999	AS6C	SKLM for System x/ThinkSystem w/SEDs - FoD per Install w/3Yr S&S
Security Key Lifecycle Manager - FoD (Latin America, Europe, Middle East, and Africa)		



Part number	Feature code	Description
00FP648	A5U1	SKLM for System x/ThinkSystem w/SEDs - FoD per Install w/1Yr S&S
00FP649	AS6C	SKLM for System x/ThinkSystem w/SEDs - FoD per Install w/3Yr S&S

The IBM Security Key Lifecycle Manager software is available from Lenovo using the ordering information listed in the following table.

Table 15. IBM Security Key Lifecycle Manager licenses

Part number	Description
7S0A007FWW	IBM Security Key Lifecycle Manager Basic Edition Install License + SW Subscription & Support 12 Months
7S0A007HWW	IBM Security Key Lifecycle Manager For Raw Decimal Terabyte Storage Resource Value Unit License + SW Subscription & Support 12 Months
7S0A007KWW	IBM Security Key Lifecycle Manager For Raw Decimal Petabyte Storage Resource Value Unit License + SW Subscription & Support 12 Months
7S0A007MWW	IBM Security Key Lifecycle Manager For Usable Decimal Terabyte Storage Resource Value Unit License + SW Subscription & Support 12 Months
7S0A007PWW	IBM Security Key Lifecycle Manager For Usable Decimal Petabyte Storage Resource Value Unit License + SW Subscription & Support 12 Months

The following tables list the ThinkSystem servers that support the SKLM FoD license upgrades.

Table 16. IBM SKLM Key Management license upgrades (Part 1 of 4)

Part Number	Description	2S AMD V3				2S Intel V3				4S 8S Intel V3				Multi Node		GPU Rich				1S V3	
		SR635 V3 (7D9G)	SR655 V3 (7D9E)	SR645 V3 (7D9D)	SR665 V3 (7D9A)	ST650 V3 (7D7A)	SR630 V3 (7D72)	SR650 V3 (7D76)	SR850 V3 (7D96)	SR860 V3 (7D93)	SR950 V3 (7DC4)	SD535 V3 (7DD1)	SD530 V3 (7DDA)	SD550 V3 (7DD2)	SR670 V2 (7Z22)	SR675 V3 (7D9Q)	SR680a V3 (7DHE)	SR685a V3 (7DHC)	ST250 V3 (7DCF)	SR250 V3 (7DCM)	
A5U1	SKLM for System x w/SEDs - FoD per Install w/1Yr S&S	N	N	Y	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	
AS6C	SKLM for System x w/SEDs - FoD per Install w/3Yr S&S	N	N	Y	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	

Table 17. IBM SKLM Key Management license upgrades (Part 2 of 4)

Part Number	Description	Edge			Super Computing				1S Intel V2		2S Intel V2						
		SE350 (7Z46 / 7D1X)	SE350 V2 (7DA9)	SE360 V2 (7DAM)	SE450 (7D8T)	SE455 V3 (7DBY)	SD665 V3 (7D9P)	SD665-N V3 (7DAZ)	SD650 V3 (7D7M)	SD650-1 V3 (7D7L)	SD650-N V3 (7D7N)	ST50 V2 (7D8K / 7D8J)	ST250 V2 (7D8G / 7D8F)	SR250 V2 (7D7R / 7D7Q)	ST650 V2 (7Z75 / 7Z74)	SR630 V2 (7Z70 / 7Z71)	SR650 V2 (7Z72 / 7Z73)
A5U1	SKLM for System x w/SEDs - FoD per Install w/1Yr S&S	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	Y	Y

Part Number	Description											Edge		Super Computing			15 Intel V2		25 Intel V2	
		SE350 (7Z46 / 7D1X)	SE350 V2 (7DA9)	SE360 V2 (7DAM)	SE450 (7D8T)	SE455 V3 (7DBY)	SD665 V3 (7D9P)	SD665-N V3 (7DAZ)	SD650 V3 (7D7M)	SD650-I V3 (7D7L)	SD650-N V3 (7D7N)	ST50 V2 (7D8K / 7D8J)	ST250 V2 (7D8G / 7D8F)	SR250 V2 (7D7R / 7D7Q)	ST650 V2 (7Z75 / 7Z74)	SR630 V2 (7Z70 / 7Z71)	SR650 V2 (7Z72 / 7Z73)			
AS6C	SKLM for System x w/SEDs - FoD per Install w/3Yr S&S	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	Y	Y			

Table 18. IBM SKLM Key Management license upgrades (Part 3 of 4)

Part Number	Description	AMD V1			Dense V2			4S V2	8S	4S V1	15 Intel V1								
		SR635 (7Y98 / 7Y99)	SR655 (7Y00 / 7Z01)	SR655 Client OS	SR645 (7D2Y / 7D2X)	SR665 (7D2W / 7D2V)	SD630 V2 (7D1K)	SD650 V2 (7D1M)	SD650-N V2 (7D1N)	SN550 V2 (7Z69)	SR850 V2 (7D31 / 7D32)	SR860 V2 (7Z59 / 7Z60)	SR950 (7X11 / 7X12)	SR850 (7X18 / 7X19)	SR850P (7D2F / 2D2G)	SR860 (7X69 / 7X70)	ST50 (7Y48 / 7Y50)	ST250 (7Y45 / 7Y46)	SR150 (7Y54)
A5U1	SKLM for System x w/SEDs - FoD per Install w/1Yr S&S	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	N	N	N	N
AS6C	SKLM for System x w/SEDs - FoD per Install w/3Yr S&S	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	N	N	N	N

Table 19. IBM SKLM Key Management license upgrades (Part 4 of 4)

Part Number	Description	2S Intel V1								Dense V1			
		ST550 (7X09 / 7X10)	SR530 (7X07 / 7X08)	SR550 (7X03 / 7X04)	SR570 (7Y02 / 7Y03)	SR590 (7X98 / 7X99)	SR630 (7X01 / 7X02)	SR650 (7X05 / 7X06)	SR670 (7Y36 / 7Y37)	SD530 (7X21)	SD650 (7X58)	SN550 (7X16)	SN850 (7X15)
A5U1	SKLM for System x w/SEDs - FoD per Install w/1Yr S&S	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N
AS6C	SKLM for System x w/SEDs - FoD per Install w/3Yr S&S	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N

Warranty

The 7450 PRO SSDs carry a one-year, customer-replaceable unit (CRU) limited warranty. When the SSDs are installed in a supported server, these drives assume the system's base warranty and any warranty upgrades.

Solid State Memory cells have an intrinsic, finite number of program/erase cycles that each cell can incur. As a result, each solid state device has a maximum amount of program/erase cycles to which it can be subjected. The warranty for Lenovo solid state drives (SSDs) is limited to drives that have not reached the maximum guaranteed number of program/erase cycles, as documented in the Official Published Specifications for the SSD product. A drive that reaches this limit may fail to operate according to its Specifications.



Physical specifications

The 7450 PRO SSDs have the following physical specifications:

U.3 drives

- Height:
 - Capacities up to 3.84 TB: 7 mm (0.3 in.)
 - Capacities 7.68 TB and 15.36TB: 15mm (0.6 in.)
- Width: 70 mm (2.8 in.)
- Depth: 100 mm (4.0 in.)
- Weight: 70 g (2.5 oz)

M.2 drives:

- 960GB and below: 2280 (22 x 80 mm)
- 1.92TB and above: 22110 (22 x 110 mm)

Operating environment

The 7450 PRO SSDs are supported in the following environment:

- Temperature:
 - Operating: 0 to 70 °C (32 to 158 °F)
 - Non-operating: -40 to 85 °C (-40 to 185 °F)
- Relative humidity, Non-operating: 5 to 95% (noncondensing)
- Maximum altitude: 3,050 m (10,000 ft)
- Shock, non-operating: 1,500 G (Max) at 0.5 ms
- Vibration, non-operating: 20 G_{RMS} (5-3000 Hz)

Agency approvals

The 7450 PRO SSDs conform to the following regulations:

- CE (Europe): EN55032, EN55024 Class B, RoHS
- FCC: CFR Title 47, Part 15, Class B
- UL/cUL: approval to UL-60950-1, 2nd Edition, IEC 60950-1:2005 (2nd Edition); EN 60950-1 (2006) + A11:2009+ A1:2010 + A12:2011 + A2:2013
- BSMI (Taiwan): approval to CNS 13438, Class B, CNS 15663
- RCM (Australia, New Zealand): AS/NZS CISPR32 Class B
- KC RRL (Korea): approval to KN32 Class B, KN 35 Class B
- W.E.E.: Compliance with EU WEEE directive 2012/19/EC.
- TUV (Germany): approval to IEC60950/EN60950
- VCCI (Japan): 2015-04 Class B
- IC (Canada): ICES-003 Class B
- Morocco: EN55032, EN55024 Class B
- UkrSEPRO (Ukraine): EN55032 Class B, IEC60950/EN60950, RoHS (Resolution 2017 No. 139)
- UKCA (UK): SI 2016/1091 Class B and SI 2012/3032 RoHS

Related publications and links

For more information, see the following documents:

- [Lenovo ThinkSystem storage options product web page](https://lenovopress.com/lp0761-storage-options-for-thinksystem-servers)
<https://lenovopress.com/lp0761-storage-options-for-thinksystem-servers> (<https://lenovopress.com/lp0761-storage-options-for-thinksystem-servers>)
- [Micron 7450 product page](https://www.micron.com/products/ssd/product-lines/7450)
<https://www.micron.com/products/ssd/product-lines/7450> (<https://www.micron.com/products/ssd/product-lines/7450>)

Related product families

Product families related to this document are the following:

- [Drives \(/servers/options/drives\)](#)

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- K-12 Solutions (<https://www.lenovo.com/us/en/d/k-12/dlp/?tabkey=K-12&es=0>)

Resources

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ThinkSystem Broadcom 57414 10/25GbE SFP28 Ethernet Adapters

Product Guide

The ThinkSystem Broadcom 57414 10/25GbE SFP28 Ethernet Adapters are high-performance 25 Gb Ethernet adapters that offers TruFlow intelligent flow processing and support advanced networking technologies including RoCE, SDN, NFV and virtualization.

The following figure shows the 2-port adapter.



Figure 1. ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter

Did you know?

These adapters support 10 Gb or 25 Gb Ethernet switches, including the ThinkSystem NE2572 RackSwitch 25 Gb Ethernet switch. Alternatively, with suitable breakout cables, you can connect four 25 Gb adapters or ports to a single 100 GbE switch port such as the ThinkSystem NE10032 RackSwitch to maximize the investment of your 100Gb switch.

Part number information

The ordering information is listed in the following table.

Table 1. Ordering information

Part number	Feature code	Description
PCIe adapters		
4XC7A08238	B5T0 / BK1H	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter
OCP adapters		
4XC7A08237	B5SZ / BN2T	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port OCP Ethernet Adapter

The PCIe adapters, when shipped as a stand-alone option part number, include the following items:

- One Broadcom adapter
- An attached full-height (3U) bracket, and a low-profile (2U) bracket that can be substituted if needed
- Documentation flyer

Supported transceivers and cables

The adapters have one or two empty SFP28 cages for connectivity. The adapters either support a connection to a 10 Gb or 25 Gb switch or can share a connection to a 100 Gb switch using a 4:1 breakout cable.

The following table lists the supported transceivers.

Table 2. Transceivers

Part number	Feature code	Description
1Gb Transceivers		
00FE333	A5DL	SFP 1000Base-T (RJ-45) Transceiver
10Gb Transceivers		
00FE331	B0RJ	10GBASE-LR SFP+ Transceiver
49Y4216	0069	Brocade 10Gb SFP+ SR Optical Transceiver
49Y4218	0064	QLogic 10Gb SFP+ SR Optical Transceiver
46C3447	5053	SFP+ SR Transceiver
4TC7A78615	BNDR	ThinkSystem Accelink 10G SR SFP+ Ethernet transceiver
25Gb Transceivers		
4M27A67041	BFH2	Lenovo 25Gb SR SFP28 Ethernet Transceiver
4TC7A69045	BF10	Lenovo Dual Rate 10G/25G SR SFP28 85C Transceiver
7G17A03537	AV1B	Lenovo Dual Rate 10G/25G SR SFP28 Transceiver
4TC7A88638	BYBJ	ThinkSystem Finisar Dual Rate 10G/25G SR SFP28 Transceiver

Configuration notes:

- It is supported to mix 10Gb and 1Gb transceivers or to mix 25Gb and 1Gb transceivers. It is not supported to mix 10Gb and 25Gb transceivers.
- Transceivers BF10, AV1B, and BYBJ are only supported at 25Gb/s speed on the PCIe adapter (4XC7A08238). The transceivers are supported at both 10Gb/s and 25Gb/s speeds on the OCP adapter (4XC7A08237).

25Gb transceivers: When installed in this 25Gb Ethernet adapter, 25Gb transceivers are designed to operate at either 25 Gb/s or 10 Gb/s speeds as listed in the description of the transceiver, however the speed also depends on the negotiation with the connected switch. In most configurations, this negotiation is automatic, however in some configurations you may have to manually set the link speed or FEC mode.

The following figure shows the 2-port OCP adapter.

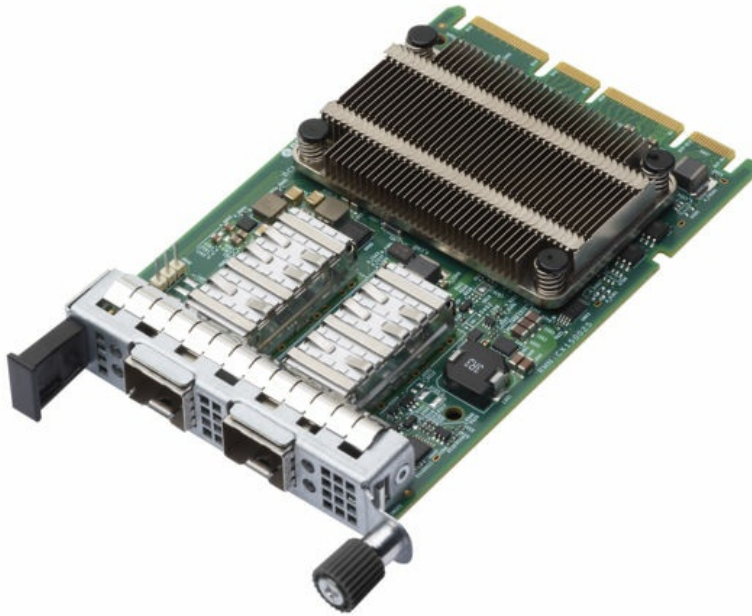


Figure 2. ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port OCP Ethernet Adapter

The following table lists the supported fiber optic cables and Active Optical Cables.

Table 3. Optical cables

Part number	Feature code	Description
LC-LC OM3 Fiber Optic Cables (these cables require a 10 GbE SFP+ SR or 25 GbE SFP28 SR transceiver)		
00MN499	ASR5	Lenovo 0.5m LC-LC OM3 MMF Cable
00MN502	ASR6	Lenovo 1m LC-LC OM3 MMF Cable
00MN505	ASR7	Lenovo 3m LC-LC OM3 MMF Cable
00MN508	ASR8	Lenovo 5m LC-LC OM3 MMF Cable
00MN511	ASR9	Lenovo 10m LC-LC OM3 MMF Cable
00MN514	ASRA	Lenovo 15m LC-LC OM3 MMF Cable
00MN517	ASRB	Lenovo 25m LC-LC OM3 MMF Cable
00MN520	ASRC	Lenovo 30m LC-LC OM3 MMF Cable
MTP-4xLC OM3 MMF Breakout Cables (these cables require a transceiver)		
00FM412	A5UA	Lenovo 1m MPO-4xLC OM3 MMF Breakout Cable
00FM413	A5UB	Lenovo 3m MPO-4xLC OM3 MMF Breakout Cable
00FM414	A5UC	Lenovo 5m MPO-4xLC OM3 MMF Breakout Cable
SFP+ 10Gb Active Optical Cables		
00YL634	ATYX	Lenovo 1m SFP+ to SFP+ Active Optical Cable
00YL637	ATYY	Lenovo 3m SFP+ to SFP+ Active Optical Cable
00YL640	ATYZ	Lenovo 5m SFP+ to SFP+ Active Optical Cable
00YL643	ATZ0	Lenovo 7m SFP+ to SFP+ Active Optical Cable
00YL646	ATZ1	Lenovo 15m SFP+ to SFP+ Active Optical Cable
00YL649	ATZ2	Lenovo 20m SFP+ to SFP+ Active Optical Cable
SFP28 25Gb Active Optical Cables		
4X97A94008	AV1F	Lenovo 3m 25G SFP28 Active Optical Cable
4X97A94011	AV1G	Lenovo 5m 25G SFP28 Active Optical Cable
4X97A94012	AV1H	Lenovo 10m 25G SFP28 Active Optical Cable
4X97A94013	AV1J	Lenovo 15m 25G SFP28 Active Optical Cable
4X97A94702	AV1K	Lenovo 20m 25G SFP28 Active Optical Cable
QSFP28 100Gb Ethernet Breakout Active Optical Cables		
7Z57A03552	AV1S	Lenovo 5m 100G to 4x25G Breakout Active Optical Cable
7Z57A03554	AV1U	Lenovo 15m 100G to 4x25G Breakout Active Optical Cable
OM4 LC to LC Cables (these cables require a transceiver)		
4Z57A10845	B2P9	Lenovo 0.5m LC-LC OM4 MMF Cable
4Z57A10846	B2PA	Lenovo 1m LC-LC OM4 MMF Cable
4Z57A10847	B2PB	Lenovo 3m LC-LC OM4 MMF Cable
4Z57A10848	B2PC	Lenovo 5m LC-LC OM4 MMF Cable
4Z57A10849	B2PD	Lenovo 10m LC-LC OM4 MMF Cable
4Z57A10850	B2PE	Lenovo 15m LC-LC OM4 MMF Cable
4Z57A10851	B2PF	Lenovo 25m LC-LC OM4 MMF Cable
4Z57A10852	B2PG	Lenovo 30m LC-LC OM4 MMF Cable

The following table lists the supported direct-attach copper (DAC) cables.

Table 4. Copper cables

Part number	Feature code	Description
SFP+ 10Gb Passive DAC Cables		
00D6288	A3RG	0.5m Passive DAC SFP+ Cable
90Y9427	A1PH	1m Passive DAC SFP+ Cable
00AY764	A51N	1.5m Passive DAC SFP+ Cable
00AY765	A51P	2m Passive DAC SFP+ Cable
90Y9430	A1PJ	3m Passive DAC SFP+ Cable
90Y9433	A1PK	5m Passive DAC SFP+ Cable
00D6151	A3RH	7m Passive DAC SFP+ Cable
SFP+ 10Gb Active DAC Cables		
00VX111	AT2R	Lenovo 1m Active DAC SFP+ Cables
00VX114	AT2S	Lenovo 3m Active DAC SFP+ Cables
00VX117	AT2T	Lenovo 5m Active DAC SFP+ Cables
SFP28 25Gb Passive DAC Cables		
7Z57A03557	AV1W	Lenovo 1m Passive 25G SFP28 DAC Cable
7Z57A03558	AV1X	Lenovo 3m Passive 25G SFP28 DAC Cable
7Z57A03559	AV1Y	Lenovo 5m Passive 25G SFP28 DAC Cable
QSFP28 100G-to-4x25G Ethernet Breakout Cables		
7Z57A03564	AV22	Lenovo 1m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable
4Z57A85043	BS32	Lenovo 1.5m 100G to 4x25G Breakout SFP28 Breakout DAC Cable
4Z57A85044	BS33	Lenovo 2m 100G to 4x25G Breakout SFP28 Breakout DAC Cable
7Z57A03565	AV23	Lenovo 3m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable
7Z57A03566	AV24	Lenovo 5m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable

Features

The adapters have the following features:

- Broadcom TruFlow technology integrates flow processing to provide hardware assisted processing of traffic flows with data path Acceleration. TruFlow enables efficient network flow processing, increases Virtual Machine density by offloading the server CPU to improve application performance.
- Broadcom adapters are the industry's most secure PCIe Ethernet solution, leveraging Broadcom's BroadSAFE® technology to provide unparalleled platform security via Silicon Root of Trust. Broadcom is the first Ethernet Adapter vendor to store authentication key and code in silicon to protect clients from maliciously modified firmware.
- The adapters support RoCEv2. RoCE (RDMA over Converged Ethernet), which allows Remote Direct Memory Access (RDMA) traffic to be communicated over Converged Ethernet using DCB. Broadcom's Smart Congestion Control provides consistent and predictable performance for real world workloads plus scaling for heavily loaded network traffic making it ideal for clients looking for deterministic low latency.
- Support for Data Center Bridging (DCB), including IEEE 802.1Qbb Priority based Flow Control (PFC), 802.1Qaz Enhanced Transmission Selection (ETS), and 802.1Qau Quantized Congestion Notification (QCN) capabilities. DCB technology allows the device to provide lossless data delivery, prioritize low latency traffic, and share bandwidth among data center physical links.

- Support for SR-IOV which bypasses the hypervisor, reducing the latency by removing data copies and context switches between VM address space and hypervisor address space, when transmitting or receiving data over the network. The implementation supports 802.1Qbg Edge Virtual Bridging (EVB)

Specifications

The adapter has the following technical specifications:

- Based on the Broadcom BCM57414 (2-port) controllers
- PCIe 3.0 x8 host interface
- Supports Message Signal Interrupt (MSI-X)
- Two SFP28 external connectors supporting a transceiver, direct-attach copper (DAC) cable or active optical cable (AOC).
- Support for PXE boot
- Support for Wake-on-LAN (WOL) (OCP adapter only)
- Networking Features
 - Jumbo frames (up to 9600-Byte)
 - 802.3x flow control
 - Link Aggregation (802.3ad)
 - Virtual LANs-802.1q VLAN tagging
 - Configurable Flow Acceleration
 - Advanced Congestion Avoidance
 - IEEE 1588 and Time Sync
 - Forward Error Correction Clause 74, Clause 91 support over 25 Gbps
 - iSCSI boot is only supported via server UEFI; iSCSI boot is not supported by the adapter in legacy mode
- Performance Features
 - Max. 30M Packet Per Second
 - Low latency
 - Bidirectional wire speed throughput
- Stateless Offload Features
 - TCP, UDP, IPv4, IPv6 checksum offload
 - Large Send Offload
 - Receive Segment Coalescing
 - TCP Segmentation offload
 - Large Receive Offload
 - Generic Receive Offload
 - Receive Side Scaling (RSS)
 - Transmit Side Scaling (TSS)
 - Header-Payload Split
 - Accelerated Received Flow Steering (RFS)

- Virtualization
 - vSwitch Acceleration
 - NetQueue, VMQueue, and Multiqueue
 - PCI SIG SR-IOV compliant with support for 128 Virtual Functions
 - Virtual NIC (vNIC) / Network Partitioning (NPAR) with support for up to 16 physical functions
 - VXLAN-aware stateless offloads
 - NVGRE-aware stateless offloads
 - Geneve-aware stateless offloads
 - IP-in-IP-aware stateless offloads
 - GRE-aware (encap/decap) stateless offloads
 - Stateless Transport Tunneling
 - Edge Virtual Bridging (EVB)
 - Per Virtual Function (VF) statistics
 - VF Receive-Side Scaling (RSS)/Transmit-Side Scaling (TSS)
- RDMA over Converged Ethernet (RoCE)
 - RoCEv2
 - Data Center Bridging with RoCE
 - Reliable Connection Queue Pair
 - Unreliable Datagram Queue Pair
 - Raw Ethernet Queue Pair
 - Up to 1 million Queue Pairs
 - Up to 64K Shared Receive Queues
 - Up to 1 million Completion Queues
 - Up to 1 million Memory Regions and Memory Windows
 - Up to 1 million Protection Domains
 - Up to 250 outstanding RDMA Reads or Atomics per Queue Pair
 - Congestion Avoidance (hardware-based flows tracking and rate adjustment)
 - Fast Memory Register
 - Linux OFED 3.5 and later
 - MS-Windows Network Direct Kernel Provider Interface and SMBDirect
 - MS-Windows Network Direct Service Provider Interface
- Integrated Flow Processing
 - 1 million+ Exact Match Flows
 - Exact Match Flow Lookup
 - Wildcard Match Flow Lookup
 - VLAN insertion/deletion
 - NAT/NAPT
 - Tunnel Encapsulation/De-capsulation
 - Flow tracking and aging
 - Mirroring
 - Metering
 - Flow counters/statistics
 - Custom tunnel header support
- Data Center Bridging
 - Priority-based flow control (PFC; IEEE 802.1Qbb)
 - Enhanced transmission selection (ETS; IEEE 802.1Qaz)
 - Quantized Congestion Notification (QCN; IEEE 802.1Qau)
 - Data Center Bridging Capability eXchange (DCBX; IEEE 802.1Qaz)
 - Up to 8 traffic classes per port; fully DCB compliant per 802.1Qbb
- Manageability
 - TruManage Technology based on Distributed Management Task Force (DMTF) standards and protocols, support for SMASH2.0, WS-Man, and IPMI2.0/DCMI1.5
 - Management Component Transport Protocol (MCTP) - MCTP over SMBus and MCTP over PCIe VDM

- Power Saving
 - ACPI compliant power management
 - PCI Express Active State Power Management (ASPM)
 - PCI Express eCLKREQ support
 - PCI Express unused lane powered down
 - Ultra low-power mode
 - Energy Efficient Ethernet (IEEE Std 802.3az-2010)
 - Power Management (PM) Offload

Server support

The following tables list the ThinkSystem servers that are compatible.

Table 5. Server support (Part 1 of 4)

Part Number	Description	2S AMD V3				2S Intel V3		4S 8S Intel V3		Multi Node		GPU Rich				1S V3				
		SR635 V3 (7D9H / 7D9G)	SR655 V3 (7D9F / 7D9E)	SR645 V3 (7D9D / 7D9C)	SR665 V3 (7D9B / 7D9A)	ST650 V3 (7D7B / 7D7A)	SR630 V3 (7D72 / 7D73)	SR650 V3 (7D75 / 7D76)	SR850 V3 (7D97 / 7D96)	SR860 V3 (7D94 / 7D93)	SR950 V3 (7DC5 / 7DC4)	SD535 V3 (7DD8 / 7DD1)	SD530 V3 (7DDA / 7DD3)	SD550 V3 (7DD9 / 7DD2)	SR670 V2 (7Z22 / 7Z23)	SR675 V3 (7D9Q / 7D9R)	SR680a V3 (7DHE)	SR685a V3 (7DHC)	ST250 V3 (7DCF / 7DCE)	SR250 V3 (7DCM / 7DCL)
4XC7A08238	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	Y	Y
4XC7A08237	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-Port OCP Ethernet Adapter	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	Y	N	N

Table 6. Server support (Part 2 of 4)

Part Number	Description	Edge				Super Computing				1S Intel V2				2S Intel V2			
		SE350 (7Z46 / 7D1X)	SE350 V2 (7DA9)	SE360 V2 (7DAM)	SE450 (7D8T)	SE455 V3 (7DBY)	SD665 V3 (7D9P)	SD665-N V3 (7DAZ)	SD650 V3 (7D7M)	SD650-I V3 (7D7L)	SD650-N V3 (7D7N)	ST50 V2 (7D8K / 7D8J)	ST250 V2 (7D8G / 7D8F)	SR250 V2 (7D7R / 7D7Q)	ST650 V2 (7Z75 / 7Z74)	SR630 V2 (7Z70 / 7Z71)	SR650 V2 (7Z72 / 7Z73)
4XC7A08238	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter	N	N	N	N	Y	N	N	N	N	N	N	Y	Y	Y	Y	Y
4XC7A08237	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-Port OCP Ethernet Adapter	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	Y	Y

Table 7. Server support (Part 3 of 4)

Part Number	Description	AMD V1					Dense V2				4S V2	8S	4S V1		1S Intel V1					
		SR635 (7Y98 / 7Y99)	SR655 (7Y00 / 7Z01)	SR655 Client OS	SR645 (7D2Y / 7D2X)	SR665 (7D2W / 7D2V)	SD630 V2 (7D1K)	SD650 V2 (7D1M)	SD650-N V2 (7D1N)	SN550 V2 (7Z69)	SR850 V2 (7D31 / 7D32)	SR860 V2 (7Z59 / 7Z60)	SR950 (7X11 / 7X12)	SR850 (7X18 / 7X19)	SR850P (7D2F / 2D2G)	SR860 (7X69 / 7X70)	ST50 (7Y48 / 7Y50)	ST250 (7Y45 / 7Y46)	SR150 (7Y54)	SR250 (7Y52 / 7Y51)
4XC7A08238	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter	Y	Y	N	Y	Y	N	N	N	N	Y	Y	Y	Y	Y	Y	N	N	N	N
4XC7A08237	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-Port OCP Ethernet Adapter	Y	Y	Y	Y	Y	N	N	N	N	Y	Y	N	N	N	N	N	N	N	N

Table 8. Server support (Part 4 of 4)

Part Number	Description	2S Intel V1								Dense V1			
		ST550 (7X09 / 7X10)	SR530 (7X07 / 7X08)	SR550 (7X03 / 7X04)	SR570 (7Y02 / 7Y03)	SR590 (7X98 / 7X99)	SR630 (7X01 / 7X02)	SR650 (7X05 / 7X06)	SR670 (7Y36 / 7Y37)	SD530 (7X21)	SD650 (7X58)	SN550 (7X16)	SN850 (7X15)
4XC7A08238	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N
4XC7A08237	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-Port OCP Ethernet Adapter	N	N	N	N	N	N	N	N	N	N	N	N

Operating system support

The following tables list the supported operating systems:

- [ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter, 4XC7A08238](#)
- [ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port OCP Ethernet Adapter, 4XC7A08237](#)

Tip: These tables are automatically generated based on data from [Lenovo ServerProven](#).

Table 9. Operating system support for ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter, 4XC7A08238 (Part 1 of 4)

Operating systems	SE455 V3	SR250 V3	ST250 V3	SD530 V3	SD550 V3	SR630 V3 (4th Gen Xeon)	SR630 V3 (5th Gen Xeon)	SR635 V3	SR645 V3	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR655 V3	SR665 V3	SR850 V3	SR860 V3	ST650 V3	SR250 V2	ST250 V2
Microsoft Windows 10	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N
Microsoft Windows 11	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N
Microsoft Windows Server 2016	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server 2019	Y	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.6	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.7	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.8	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.9	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y
Red Hat Enterprise Linux 8.5	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y
Red Hat Enterprise Linux 8.6	Y	N	N	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	N	N	N	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.0	Y	N	N	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	N	N	N	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.4	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP5	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP5 with Xen	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP1 with Xen	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP2 with Xen	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Operating systems	SE455 V3	SR250 V3	ST250 V3	SD530 V3	SD550 V3	SR630 V3 (4th Gen Xeon)	SR630 V3 (5th Gen Xeon)	SR635 V3	SR645 V3	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR655 V3	SR665 V3	SR850 V3	SR860 V3	ST650 V3	SR250 V2	ST250 V2
SUSE Linux Enterprise Server 15 SP3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y
SUSE Linux Enterprise Server 15 SP3 with Xen	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	N	N	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4 with Xen	Y	N	N	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 with Xen	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 18.04.5 LTS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04 LTS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04.5 LTS	Y	N	N	N	N	N	N	Y	Y	N	N	Y	Y	Y ¹	Y ¹	N	N	N
Ubuntu 22.04 LTS	N	N	N	N	N	Y	N	Y	Y	Y	N	Y	Y	Y ¹	Y ¹	Y	Y	Y
Ubuntu 22.04.2 LTS	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04.3 LTS	N	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 24.04 LTS	N	N	N	N	N	N	N	N	Y	Y	Y	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 7.0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 7.0 U1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 7.0 U2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0	N	N	N	N	N	Y	N	Y	Y	Y	N	Y	Y	N	N	N	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	N	N	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

¹ For limitation, please refer [Support Tip TT1716](#)

Table 10. Operating system support for ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter, 4XC7A08238 (Part 2 of 4)

Operating systems	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SR860 V2	ST650 V2	SR635	SR645	SR655	SR665
Microsoft Windows 10	N	N	N	N	N	N	N	N	Y ²	N
Microsoft Windows 11	N	N	N	N	N	N	N	N	Y ²	N
Microsoft Windows Server 2016	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Operating systems	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SR860 V2	ST650 V2	SR635	SR645	SR655	SR665
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.6	N	N	N	N	N	N	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 7.7	N	N	N	N	N	N	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 7.8	N	N	N	N	N	N	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 7.9	Y	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 8.0	N	N	N	N	N	N	Y ¹	N	Y ¹	N
Red Hat Enterprise Linux 8.1	N	N	N	N	N	N	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 8.2	Y	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 8.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP4	N	N	N	N	N	N	Y ¹	N	Y ¹	N
SUSE Linux Enterprise Server 12 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP1	N	N	N	N	N	N	Y ¹	Y ¹	Y ¹	Y ¹
SUSE Linux Enterprise Server 15 SP1 with Xen	N	N	N	N	N	N	Y ¹	Y ¹	Y ¹	Y ¹
SUSE Linux Enterprise Server 15 SP2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 with Xen	N	N	N	N	N	N	N	N	N	N
Ubuntu 18.04.5 LTS	Y	Y	Y	N	N	Y	N	N	N	N
Ubuntu 20.04 LTS	Y	Y	N	N	N	N	N	N	N	N
Ubuntu 20.04.5 LTS	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04 LTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Operating systems	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SR860 V2	ST650 V2	SR635	SR645	SR655	SR665
Ubuntu 22.04.2 LTS	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04.3 LTS	N	N	N	N	N	N	N	N	N	N
Ubuntu 24.04 LTS	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U1	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U3	Y	Y	Y	N	N	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0	N	N	N	N	N	N	Y ¹	Y ¹	Y ¹	Y ¹
VMware vSphere Hypervisor (ESXi) 7.0 U1	N	N	N	Y	Y	N	Y ¹	Y	Y ¹	Y
VMware vSphere Hypervisor (ESXi) 7.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

¹ The OS is not supported with EPYC 7003 processors.

² ISG will not sell/preload this OS, but compatibility and cert only.

Table 11. Operating system support for ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter, 4XC7A08238 (Part 3 of 4)

Operating systems	SR530 (Xeon Gen 2)	SR550 (Xeon Gen 2)	SR570 (Xeon Gen 2)	SR590 (Xeon Gen 2)	SR630 (Xeon Gen 2)	SR650 (Xeon Gen 2)	SR850 (Xeon Gen 2)	SR850P (Xeon Gen 2)	SR860 (Xeon Gen 2)	SR950 (Xeon Gen 2)	ST550 (Xeon Gen 2)
Microsoft Windows 10	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows 11	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server 2016	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

	SR530 (Xeon Gen 2)	SR550 (Xeon Gen 2)	SR570 (Xeon Gen 2)	SR590 (Xeon Gen 2)	SR630 (Xeon Gen 2)	SR650 (Xeon Gen 2)	SR850 (Xeon Gen 2)	SR850P (Xeon Gen 2)	SR860 (Xeon Gen 2)	SR950 (Xeon Gen 2)	ST550 (Xeon Gen 2)
Operating systems											
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.4	N	N	N	N	N	N	N	N	N	Y	Y
SUSE Linux Enterprise Server 12 SP4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15	N	N	N	N	Y	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP1 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 with Xen	N	N	N	N	Y	N	N	N	N	N	N
Ubuntu 18.04.5 LTS	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04 LTS	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04.5 LTS	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04 LTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 22.04.2 LTS	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04.3 LTS	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 24.04 LTS	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

	SR530 (Xeon Gen 2)	SR550 (Xeon Gen 2)	SR570 (Xeon Gen 2)	SR590 (Xeon Gen 2)	SR630 (Xeon Gen 2)	SR650 (Xeon Gen 2)	SR850 (Xeon Gen 2)	SR850P (Xeon Gen 2)	SR860 (Xeon Gen 2)	SR950 (Xeon Gen 2)	ST550 (Xeon Gen 2)
Operating systems											
VMware vSphere Hypervisor (ESXi) 7.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 12. Operating system support for ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter, 4XC7A08238 (Part 4 of 4)

	SR530 (Xeon Gen 1)	SR550 (Xeon Gen 1)	SR570 (Xeon Gen 1)	SR590 (Xeon Gen 1)	SR630 (Xeon Gen 1)	SR650 (Xeon Gen 1)	SR850 (Xeon Gen 1)	SR860 (Xeon Gen 1)	SR950 (Xeon Gen 1)	ST550 (Xeon Gen 1)
Operating systems										
Microsoft Windows 10	N	N	N	N	N	N	N	N	N	N
Microsoft Windows 11	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server 2016	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 9.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

	SR530 (Xeon Gen 1)	SR550 (Xeon Gen 1)	SR570 (Xeon Gen 1)	SR590 (Xeon Gen 1)	SR630 (Xeon Gen 1)	SR650 (Xeon Gen 1)	SR850 (Xeon Gen 1)	SR860 (Xeon Gen 1)	SR950 (Xeon Gen 1)	ST550 (Xeon Gen 1)
Operating systems										

Red Hat Enterprise Linux 9.3	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 9.4	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP1 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 with Xen	N	N	N	N	N	N	N	N	N	N
Ubuntu 18.04.5 LTS	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04 LTS	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04.5 LTS	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04 LTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 22.04.2 LTS	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04.3 LTS	N	N	N	N	N	N	N	N	N	N
Ubuntu 24.04 LTS	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 13. Operating system support for ThinkSystem Broadcom 57414 10/25GbE SFP28 2-Port OCP Ethernet Adapter, 4XC7A08237 (Part 1 of 2)

Operating systems	SE455 V3	SD530 V3	SD550 V3	SR630 V3 (4th Gen Xeon)	SR630 V3 (5th Gen Xeon)	SR635 V3	SR645 V3	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR655 V3	SR665 V3	SR850 V3	SR860 V3	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SR860 V2
Microsoft Windows 10	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N
Microsoft Windows 11	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N
Microsoft Windows Server 2016	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.6	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.7	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.8	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.9	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.2	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.3	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	N	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.0	Y	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	N	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.4	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP5	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5 with Xen	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP1 with Xen	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP2	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2 with Xen	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y

Operating systems	SE455 V3	SD530 V3	SD550 V3	SR630 V3 (4th Gen Xeon)	SR630 V3 (5th Gen Xeon)	SR635 V3	SR645 V3	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR655 V3	SR665 V3	SR850 V3	SR860 V3	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SR860 V2
SUSE Linux Enterprise Server 15 SP3 with Xen	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4 with Xen	Y	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 18.04.5 LTS	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	N
Ubuntu 20.04 LTS	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N	N
Ubuntu 20.04.5 LTS	Y	N	N	N	N	Y	Y	N	N	Y	Y	Y ²	Y ²	N	N	N	N	N
Ubuntu 22.04 LTS	N	N	N	Y	N	Y	Y	Y	N	Y	Y	Y ²	Y ²	Y	Y	Y	Y	Y
Ubuntu 22.04.2 LTS	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04.3 LTS	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 24.04 LTS	N	N	N	N	N	N	Y	Y	Y	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U3	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	N
VMware vSphere Hypervisor (ESXi) 7.0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 7.0 U1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U2	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0	N	N	N	Y	N	Y	Y	Y	N	Y	Y	N	N	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	N	N	Y ¹	N	Y	Y	Y ¹	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

¹ For limitation, please refer [Support Tip 104278](#)

² For limitation, please refer [Support Tip TT1716](#)

Table 14. Operating system support for ThinkSystem Broadcom 57414 10/25GbE SFP28 2-Port OCP Ethernet Adapter, 4XC7A08237 (Part 2 of 2)

Operating systems	SR635	SR645	SR655	SR665
Microsoft Windows 10	N	N	Y ²	N
Microsoft Windows 11	N	N	Y ²	N
Microsoft Windows Server 2016	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	Y	Y
Red Hat Enterprise Linux 7.6	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 7.7	Y ¹	Y ¹	Y ¹	Y ¹

Operating systems	SR635	SR645	SR655	SR665
Red Hat Enterprise Linux 7.8	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 7.9	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 8.0	Y ¹	N	Y ¹	N
Red Hat Enterprise Linux 8.1	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 8.2	Y ¹	Y ¹	Y ¹	Y ¹
Red Hat Enterprise Linux 8.3	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	Y	Y	Y	Y
Red Hat Enterprise Linux 9.0	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	Y	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y
Red Hat Enterprise Linux 9.3	Y	Y	Y	Y
Red Hat Enterprise Linux 9.4	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP4	Y ¹	N	Y ¹	N
SUSE Linux Enterprise Server 12 SP5	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5 with Xen	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP1	Y ¹	Y ¹	Y ¹	Y ¹
SUSE Linux Enterprise Server 15 SP1 with Xen	Y ¹	Y ¹	Y ¹	Y ¹
SUSE Linux Enterprise Server 15 SP2	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2 with Xen	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3 with Xen	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4 with Xen	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5 with Xen	Y	Y	Y	Y
Ubuntu 18.04.5 LTS	N	N	N	N
Ubuntu 20.04 LTS	N	N	N	N
Ubuntu 20.04.5 LTS	N	N	N	N
Ubuntu 22.04 LTS	Y	Y	Y	Y
Ubuntu 22.04.2 LTS	N	N	N	N
Ubuntu 22.04.3 LTS	N	N	N	N
Ubuntu 24.04 LTS	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U3	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0	Y ¹	Y ¹	Y ¹	Y ¹
VMware vSphere Hypervisor (ESXi) 7.0 U1	Y ¹	Y	Y ¹	Y

	SR635	SR645	SR655	SR665
Operating systems				
VMware vSphere Hypervisor (ESXi) 7.0 U2	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	Y	Y	Y

¹ The OS is not supported with EPYC 7003 processors.

² ISG will not sell/preload this OS, but compatibility and cert only.

Physical specifications

The PCIe adapters have the following dimensions:

- Length: 167 mm (6.6 in.)
- Height: 63 mm (2.5 in.)

Operating environment

The adapters are supported in the following environment:

- Temperature (operating): 0 to 55 °C (32 to 131 °F)
- Temperature (storage): -40 to 65 °C (-40 to 149 °F)
- Humidity: 5 to 95% non-condensing

Warranty

One-year limited warranty. When installed in a supported server, these adapters assume the server's base warranty and any warranty upgrade.

Agency approvals

The adapters conform to the following standards:

- EN 55022:2010 + AC:2011 Class B (CE EU)
- EN 55024 Class B (EU)
- CFR47, Part 15 Class B (USA FCC)
- ICES-003 Class B (Canada)
- CNS13438 Class B (BSMI Taiwan)
- RRL KN22 Class B (S. Korea)
- KN24 (ESD) (S. Korea)
- V-3 / 2014 / 04 (VCCI Japan)
- EN 60950-1
- UL 60950-1
- CTUVus UL
- CSA 22.2 No. 950
- CNS14336 Class B
- ICES 003
- UL 1977 (connector safety)
- UL 796 (PCB wiring safety)
- UL 94 (flammability of parts)

Related publications

For more information, see the following resources:

- Networking Options for ThinkSystem Servers
<https://lenovopress.com/lp0765-networking-options-for-thinksystem-servers>
- Lenovo ServerProven compatibility information:
<http://www.lenovo.com/us/en/serverproven/>

Related product families

Product families related to this document are the following:

- [25 Gb Ethernet Connectivity](#)
- [Ethernet Adapters](#)

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This document, LP0781, was created or updated on October 31, 2023.

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AMD EPYC™ 9124

GENERAL
SPECIFICATIONS

CONNECTIVITY

GRAPHICS CAPABILITIES

PRODUCT IDS

KEY FEATURES

General Specifications

Platform:	Server
Product Family:	AMD EPYC™
Product Line:	AMD EPYC™ 9004 Series
AMD PRO Technologies:	No
Regional Availability:	Global, China, NA, EMEA, APJ, LATAM
# of CPU Cores:	16
# of Threads:	32
Max. Boost Clock ⓘ:	Up to 3.7GHz
All Core Boost Speed ⓘ:	3.6GHz
Base Clock:	3.0GHz
L3 Cache:	64MB

1kU Pricing:	1,083 USD
Default TDP:	200W
AMD Configurable TDP (cTDP):	200-240W
CPU Socket:	SP5
Socket Count:	1P / 2P
Launch Date:	11/10/2022

Connectivity

PCI Express® Version:	PCIe 5.0 x128
System Memory Type:	DDR5
Memory Channels:	12
System Memory Specification:	Up to 4800MT/s
Per Socket Mem BW:	460.8 GB/s

Graphics Capabilities

Integrated Graphics:	No
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Product IDs

Product ID Tray:	100-000000802
------------------	---------------

Key Features

Supported Technologies:	AMD Infinity Guard AMD Infinity Architecture
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Workload Affinity:	Media streaming Per core CAE/CFD/FEA Value
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Lenovo ThinkSystem SR645 V3

Servidor denso e de elevado desempenho



Desempenho sem sacrifícios

As infraestruturas e cargas de trabalho de TI estão sempre evoluindo, criando novos tipos de cargas de trabalho. Você precisa de um servidor que possa lidar com as cargas de trabalho de hoje e seja ágil o suficiente para enfrentar os desafios de amanhã. Com maior densidade de núcleo no processador AMD EPYC™ de 4ª geração e velocidade de memória PCIe 5.0, o ThinkSystem SR645 V3 1U tem potência, largura de banda e memória para lidar com virtualização, análise de dados e cargas de trabalho com uso intenso de gráficos.

Com proteção fornecida pela segurança Lenovo ThinkShield e o gerenciamento simplificado do XClarity da Lenovo, o SR645 V3 incorpora a reputação da Lenovo de alta confiabilidade.

Projetado para flexibilidade

Suas necessidades de dados são exclusivas do seu negócio, e você precisa de uma infraestrutura que tenha flexibilidade para ser personalizada. Com o SR645 V3, você pode escolher as opções de unidade de SAS/SATA, NVMe e EDSFF. Configure suas unidades hoje e com um formato AnyBay™ hot swappable, adicione ou altere rapidamente para gerenciar a carga de trabalho da próxima geração.

Escolha PCIe 4.0 ou 5.0 para atender às metas de velocidade e orçamento da sua infraestrutura e selecione a melhor opção de GPU para suas cargas de trabalho. Seja análise de dados, virtualização ou HPC, o SR645 V3 tem as opções para seus requisitos exclusivos.

Gerenciamento fácil e seguro

O ThinkSystem SR645 V3 usa o Lenovo XClarity para uma solução de gerenciamento de sistema fácil de usar. O XClarity permite uma visão centralizada e orientada por dados das operações do data center e monitora adições e alterações inesperadas.

Confie no Lenovo ThinkShield para proteger e defender sua infraestrutura de data center contra ataques, com uma abordagem abrangente de segurança de ponta a ponta que começa com o desenvolvimento com a nossa Root of Trust e continua por toda a cadeia de suprimentos e o ciclo de vida completo do servidor.

O portfólio de serviços da Lenovo também oferece suporte ao ciclo de vida completo de seus ativos de TI da Lenovo: desde o planejamento, a implantação e o suporte até a recuperação de ativos.

Lenovo

Especificações

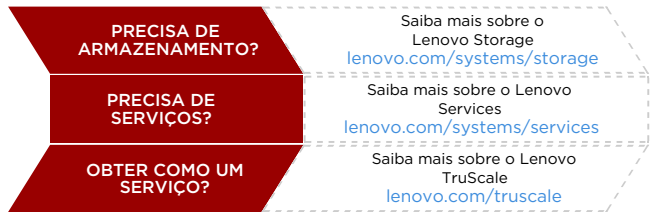
Nome dos produtos	ThinkSystem SR645 V3
Formato	Servidor em rack 1U
Processadores	Até 2 processadores AMD EPYC™ de 4ª geração
Memória	Até 24 slots de memória TruDDR5 Máximo de 6 TB com suporte para 3DS RDIMMs; até 1DPC a 4.800 MHz
Baixas de drive	Até 4 unidades de 3,5", 12 unidades de 2,5" ou 16 unidades EDSFF
Slots de expansão	Até 3 slots PCIe 4.0, 2 slots PCIe 5.0 1 slot para adaptador OCP 3.0
GPU	Até 4 GPUs de largura única
Interface de rede	Adaptador mezz OCP 3.0, adaptadores PCIe
Energia	Suprimentos AC e CC redundantes duplos com titânio/platina para conformidade com ErP Lot9
Portas	Frente: 1 USB 3.1 G1, 1 USB 2.0 com conexão XCC para dispositivo móvel, 1 VGA (opcional), porta de diagnóstico externa opcional Traseira: 3 USB 3.1 G1, 1 porta VGA, 1 porta serial (opcional), LED de ID do sistema, LED de erro, botão NMI
Sistema de Gerenciamento	Lenovo XClarity Controller
Sistema Operacional Compatível	Microsoft Windows Server, SUSE Linux Enterprise Server, Red Hat Enterprise Linux, VMware ESXi
Garantia Limitada	1 e 3 anos de serviços no local e para unidades substituíveis pelo cliente, próximo dia útil, 9 horas por dia, 5 dias por semana, upgrades de serviço opcionais

Sobre a Lenovo

Lenovo (HKSE: 992) (ADR: LNVGY) é uma potência global de tecnologia com receita de US\$ 62 bilhões, classificada em 171º lugar na Fortune Global 500, empregando 77 mil pessoas em todo o mundo e atendendo a milhões de clientes todos os dias em 180 mercados. Focada em uma visão ousada de fornecer tecnologia mais inteligente para todos, a Lenovo está se expandindo para novas áreas de crescimento de infraestrutura, dispositivos móveis, soluções e serviços. Essa transformação está construindo uma sociedade digital mais inclusiva, confiável e sustentável para todos, em todos os lugares.

Para mais informações

Para saber mais sobre o Lenovo ThinkSystem SR645 V3, entre em contato com seu representante ou parceiro de negócios Lenovo ou acesse lenovo.com/thinksystem. Para especificações detalhadas, consulte o [guia de produto SR645 V3](#).



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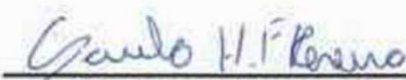


ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

Razão social	Teczap Comércio e Distribuição LTDA
CNPJ	08619872000144
Inscrição estadual	0010287510050
Endereço	Av. Doutor José Gonçalves da Cunha nº679 Centro – Entre Rios de Minas – MG – 35.490-000
Telefone/fax	(31) 2626-0009
Nome do signatário	Saulo Henrique de Faria Pereira
Estado civil do signatário	Solteiro
Cargo	Sócio Administrador
Identidade do signatário	MG-10133557
CPF	042.060.396-40
Nacionalidade do signatário	Brasileiro
Banco	Banco do Brasil
Agência	1222-x
Conta Corrente	121096-3
Praça de pagamento	Belo Horizonte
Procedência	Nacional


Saulo Henrique de Faria Pereira

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

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Seleção Pública N.º 048/2024

LOTE	ESPECIFICAÇÃO	QUANT /UNID	PREÇO UNIT.(R\$)	PREÇO TOTAL (R\$)
ITEM 1	Marca: DELL Modelo: PowerEdge R6615 Fabricante: DELL ➤ Processador AMD EPYC 9124 ➤ 3.0GHz, 16C/32T, 64M Cache (200W) DDR5-4800 ➤ Trusted Platform Module 2.0 V3 ➤ Memória: 4 x módulos de 32GB RDIMM, 4800MT/s Dual Rank (ou 2 módulos de 64GB RDMM), totalizando 128GB ➤ Chassis de 2,5 polegadas para comportar pelo menos 8 discos NVMe (HWRAID Drives), Smart Flow, Front PERC 11 ➤ Armazenamento: Pelo menos 2 discos NVMe Enterprise de 1.92TB Read Intensive AG Drive U.2 Gen4 with carrier ➤ Controladora PERC H755N (validar brackets para Smart Flow ou traseiro) ➤ C33, RAID 1 com NVMe e front PERC ➤ Painel Frontal com LCD (Bezel) ➤ iDRAC9 Enterprise 16G ➤ Riser Config 3, 2 x16 FH (Gen5) ➤ Fonte de energia Redundante Dual, Hot-plug, (1+1), 800W ➤ 2 x Cabos de força 250V, NBR14136/C13 de 2 metros ➤ Placa Broadcom 57414 Dual Port 10/25GbE SFP28, OCP NIC 3.0	1	R\$ 122.000,00	R\$ 122.000,00

	➤ Placa Broadcom 5720 Dual Port 1GbE Optional LOM ➤ Trilhos deslizantes para rack com braço gerenciador de cabos Sugestões: PowerEdge R6615 Server BCC / R7615 / Lenovo ThinkSystem SR665 / HPE Next Gen AMD EPYC™			
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Qualquer dúvida quanta a especificação favor entrar em contato via 0800 ou email saulo@teczap.com.br nos termos do art. 43, §3º da Lei 8.666/93 estabelece que "É facultada à Comissão ou autoridade superior, em qualquer fase da licitação, a promoção de diligência destinada a esclarecer ou a complementar a instrução do processo, vedada a inclusão posterior de documento ou informação que deveria constar originariamente da proposta"

TCU "atente para o disposto no art. 43, § 3º, abstendo-se, em consequência, de inabilitar ou desclassificar empresas em virtude de detalhes irrelevantes ou que possam ser supridos pela diligência autorizada por lei" (Acórdão nº 2.521/2003, Rel. Min. AUGUSTO SHERMAN CAVALCANTI, j. 21/10/2003, DOU 29/10/2003).

Pagamento:

O pagamento será realizado no prazo máximo de até 15 dias, contados a partir do recebimento da Nota Fiscal ou Fatura, através de ordem bancária, para crédito em banco, agência e conta corrente indicado pelo contratado.

Prazo de entrega:

O fornecimento do bem será realizado em 20 dias corridos.

Garantia:

O prazo de garantia será de 36 meses.



Prazo de validade da proposta:

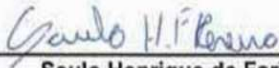
A proposta terá validade de 30 dias corridos, a contar da data de sua apresentação.

Declaramos estar inclusos despesas dos tributos, encargos trabalhistas, previdenciários, fiscais, comerciais, taxas, fretes, seguros, deslocamento de pessoal, prestação de garantia e quaisquer outras que incidam ou venham a incidir na execução do contrato.

Declaramos que iremos cumprir todos os itens prescritos no termo de referencia.

Telefone para suporte técnico e abertura de chamados: 08006010009

Entre Rios de Minas, 26 de Abril de 2024.



Saulo Henrique de Faria Pereira

DECLARAÇÃO CONJUNTA

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

A empresa Teczap Comercio e Distribuição Ltda, inscrita no CNPJ sob o nº 08.619.872/0001-44 inscrição estadual nº 0010287510050, com sede na avenida Doutor José Gonçalves Da Cunha, nº 679, por intermédio do seu representante legal o Sr Saulo Henrique De Faria Pereira, portador do documento de identidade – RG nº MG-10133557 PC e do CPF nº042.060.396.40, residente e domiciliado na Avenida Doutor José Gonçalves Da Cunha, nº 679 – entre rios de minas – MG – 35490-000 na qualidade de proponente do procedimento licitatório, sob a modalidade de Pregão Eletrônica:

- a) Não somos declarados inidôneos para licitar ou contratar com o Poder Público, em qualquer de suas esferas.
- b) Declaramos que não empregamos menor de dezoito anos em trabalho noturno, perigoso ou insalubre e não emprega menor de dezesseis anos.
- c) Declaramos que não possuímos grau de parentesco consanguíneo ou afim, com servidor público Municipal.
- d) Declaramos que recebemos do órgão licitante toda a documentação relativa à licitação supramencionada, tendo tomado conhecimento de todas as informações e das condições para o cumprimento das obrigações decorrentes do objeto deste feito.
- e) Assumimos inteira responsabilidade pela autenticidade de todos os documentos apresentados, sujeitando-nos a eventuais averiguações que se façam necessárias.
- f) Comprometemo-nos a manter, durante a execução da Ata de RP, em compatibilidade com as obrigações assumidas todas as condições de habilitação e qualificação exigidas na licitação.
- g) Comprometemo-nos a repassar na proporção correspondente, eventuais reduções de preços decorrentes de mudanças de alíquotas de impostos incidentes sobre a prestação

dos serviços, objeto da licitação, em função de alterações de legislação pertinente, publicadas durante a vigência do contrato.

h) Temos conhecimento e submetemo-nos ao disposto na Lei Federal nº 8.078, de 11 de setembro de 1990 - Código de Defesa do Consumidor, bem como, ao Edital e Anexos do Pregão Eletrônico realizado pela Prefeitura Municipal de Prudentópolis.

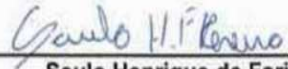
i) DECLARAMOS, que o responsável pela assinatura da Ata de RP é o Sr Saulo Henrique De Faria Pereira, portador do documento de identidade – RG nº MG-10133557 PC e do CPF nº042.060.396.40, residente e domiciliado na Avenida Doutor José Gonçalves Da Cunha, nº 679 – entre rios de minas – MG – 35490-000, cuja função/cargo é sócio administrador;

j) DECLARAMOS, para os devidos fins que em caso de qualquer comunicação futura referente a este processo licitatório, bem como em caso de eventual contratação, concordo que a Ata de RP seja encaminhada para o seguinte endereço: E-mail: saulo@teczap.com.br / Telefone: (31) 2626-0009;

Caso venhamos a alterar o citado e-mail ou telefone comprometo-me em protocolizar pedido de alteração junto ao Sistema de Protocolo, sob pena de ser considerado como intimado nos dados anteriormente fornecidos.

k) Nomeamos e constituímos o Sr Saulo Henrique De Faria Pereira, portador do documento de identidade – RG nº MG-10133557 PC e do CPF nº042.060.396.40 responsável por acompanhar a execução da Ata de RP, referente processo supracitado e todos os atos necessários ao cumprimento das obrigações contidas no instrumento convocatório, seus Anexos e na Ata de Registro de Preço.

Por ser expressão da verdade, firmamos a presente declaração.


Saulo Henrique de Faria Pereira

DECLARAÇÃO DOS REQUISITOS DE HABILITAÇÃO

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

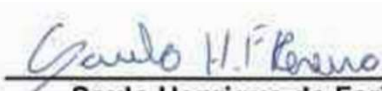
CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

A empresa Teczap Comercio e Distribuição Ltda, inscrita no CNPJ sob o nº 08.619.872/0001-44 inscrição estadual nº 0010287510050, com sede na Avenida Doutor José Gonçalves Da Cunha, nº 679, por intermédio do seu representante legal o Sr Saulo Henrique De Faria Pereira, portador do documento de identidade – RG nº MG-10133557 PC e do CPF nº042.060.396.40, residente e domiciliado na Avenida Doutor José Gonçalves Da Cunha, nº 679 – Entre Rios De Minas – MG – 35490-000 interessada em participar deste pregão, declara que:

Assume inteira responsabilidade pela veracidade dos documentos apresentados.

Se sujeita a todas as exigências, especificações e termos estabelecidos neste **Pregão Eletrônico** e seus **anexos**, bem como, sob as penas cabíveis.


Saulo Henrique de Faria Pereira

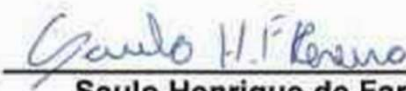
DECLARAÇÃO DE PORTADORES DE DEFICIÊNCIA

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

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Saulo Henrique de Faria Pereira

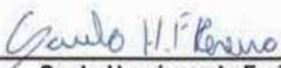
DECLARAÇÃO REFERENTE À HABILITAÇÃO (EM ATENDIMENTO AO INCISO VII DO ART. 4º DA LEI Nº 10.520/2002) – PLENO CONHECIMENTO

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

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Saulo Henrique de Faria Pereira

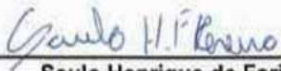
DECLARAÇÃO DE CUMPRIMENTO DO ART. 7º, XXXIII/CF

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

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Saulo Henrique de Faria Pereira

DECLARAÇÃO EMPRESA DE PEQUENO PORTE

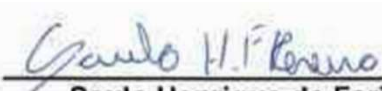
ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

A empresa Teczap Comercio e Distribuição Ltda, inscrita no CNPJ sob o nº 08.619.872/0001-44 inscrição estadual nº 0010287510050, com sede na Avenida Doutor José Gonçalves Da Cunha, nº 679, por intermédio do seu representante legal o Sr Saulo Henrique De Faria Pereira, portador do documento de identidade – RG nº MG-10133557 PC e do CPF nº042.060.396.40, residente e domiciliado na Avenida Doutor José Gonçalves Da Cunha, nº 679 – Entre Rios De Minas – MG – 35490-000 interessada em participar deste pregão, declara, cumpre os requisitos legais para a qualificação como microempresa ou empresa de pequeno porte estabelecidos pela Lei Complementar nº 123, de 14.12.2006, em especial quanto ao seu art. 3º, estando apta a usufruir o tratamento favorecido estabelecido nessa Lei complementar e no decreto nº 6.204, de 05.09.2007.

Declara, ainda, que a empresa está excluída das vedações constantes do parágrafo 4º do artigo 3º da Lei Complementar nº 123, de 14.12.2006, e que se compromete a promover a regularização de eventuais defeitos ou restrições existentes na documentação exigida para efeito de regularidade fiscal, caso seja declarada vencedora do certame.


Saulo Henrique de Faria Pereira



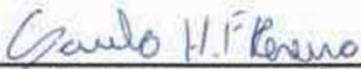
**DECLARAÇÃO DO LICITANTE DE QUE OS DIRIGENTES, GERENTES, SÓCIOS,
RESPONSÁVEIS TÉCNICOS E DEMAIS PROFISSIONAIS NÃO FIGURAM
EMPREGADOS**

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

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Saulo Henrique de Faria Pereira

DECLARAÇÃO DE ELABORAÇÃO INDEPENDENTE DE PROPOSTA

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

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- 1.a proposta apresentada para participar desta licitação foi elaborada de maneira independente por mim e o conteúdo da proposta não foi, no todo ou em parte, direta ou indiretamente, informado, discutido ou recebido de qualquer outro participante potencial ou de fato desta licitação, por qualquer meio ou por qualquer pessoa;
2. a intenção de apresentar a proposta elaborada para participar desta licitação não foi informada, discutida ou recebida de qualquer outro participante potencial ou de fato desta licitação, por qualquer meio ou por qualquer pessoa;
3. que não tentei, por qualquer meio ou por qualquer pessoa, influir na decisão de qualquer outro participante potencial ou de fato desta licitação quanto a participar ou não dela;
- 4.que o conteúdo da proposta apresentada para participar desta licitação não será, no todo ou em parte, direta ou indiretamente, comunicado ou discutido com qualquer outro participante potencial ou de fato desta licitação antes da adjudicação do objeto;
5. que o conteúdo da proposta apresentada para participar desta licitação não foi, no todo ou em parte, direta ou indiretamente, informado, discutido ou recebido de qualquer integrante do órgão licitante antes da abertura oficial das propostas; e
6. que estou plenamente ciente do teor e da extensão desta declaração e que detenho plenos poderes e informações para firmá-la.



Saulo Henrique de Faria Pereira

**DECLARAÇÃO DE PLENO CONHECIMENTO E ATENDIMENTO ÀS EXIGÊNCIAS DE
HABILITAÇÃO**

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

A empresa Teczap Comercio e Distribuição Ltda, inscrita no CNPJ sob o nº 08.619.872/0001-44 inscrição estadual nº 0010287510050, com sede na avenida Doutor José Gonçalves Da Cunha, nº 679, por intermédio do seu representante legal o Sr Saulo Henrique De Faria Pereira, portador do documento de identidade – RG nº MG-10133557 PC e do CPF nº042.060.396.40, residente e domiciliado na Avenida Doutor José Gonçalves Da Cunha, nº 679 – entre rios de minas – MG – 35490-000 em cumprimento do art. 49 da Lei Federal nº 8.666/93 e em face do quanto disposto no art. 96 e no art. 87, inciso IV do mesmo diploma, declaramos:

(X) o pleno conhecimento e atendimento às exigências de habilitação.

ou

(x) o pleno conhecimento e atendimento às exigências de habilitação, ressalvada, na forma do §1º do art. 43 da Lei complementar nº 123/06, a existência de restrição fiscal.



Saulo Henrique de Faria Pereira

DECLARAÇÃO

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

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A handwritten signature in blue ink, reading "Saulo H. F. Pereira", is written over a horizontal line. Below the line, the name "Saulo Henrique de Faria Pereira" is printed in a bold, black, sans-serif font.

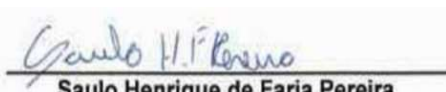
**DECLARAÇÃO DE SUSTENTABILIDADE
ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.**

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

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Por ser expressão da verdade, firmamos a presente.



Saulo Henrique de Faria Pereira

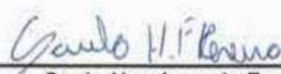
DECLARAÇÃO DE IDONEIDADE

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

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Saulo Henrique de Faria Pereira

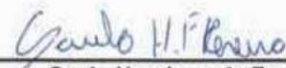
DECLARAÇÃO

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

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Saulo Henrique de Faria Pereira

DECLARAÇÃO INEXISTÊNCIA DE FATO IMPEDITIVO

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

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1.1 Não mantém vínculo de natureza técnica, comercial, econômica, financeira, trabalhista ou civil com dirigente do órgão ou entidade contratante ou com agente público que desempenhe função na licitação ou atue na fiscalização ou na gestão do contrato, ou que deles seja cônjuge, companheiro ou parente em linha reta, colateral ou por afinidade, até o terceiro grau.

1.2. Nos 5 (cinco) anos anteriores à divulgação do edital, não foi condenado(a) judicialmente, com trânsito em julgado, por exploração de trabalho infantil, por submissão de trabalhadores a condições análogas às de escravo ou por contratação de adolescentes nos casos vedados pela legislação trabalhista.



Saulo Henrique de Faria Pereira

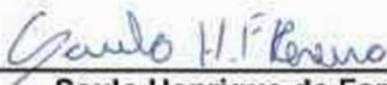
DECLARAÇÃO DE ATENDIMENTO À POLÍTICA AMBIENTAL DE LICITAÇÃO SUSTENTÁVEL

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

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Saulo Henrique de Faria Pereira

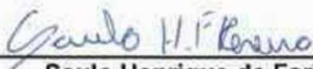
DECLARAÇÃO DE AUTENTICIDADE DOS DOCUMENTOS

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

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Saulo Henrique de Faria Pereira

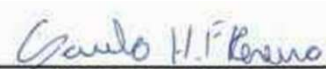
DECLARAÇÃO SOBRE IMPEDIMENTOS DA LEI Nº 13.303/2016

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

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Saulo Henrique de Faria Pereira

DECLARAÇÃO DE INEXISTÊNCIA DE PENALIDADE

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

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The image shows a handwritten signature in blue ink, which appears to read "Saulo H. F. Pereira". Below the signature is a horizontal line, and underneath that line, the name "Saulo Henrique de Faria Pereira" is printed in a bold, black, sans-serif font.



DECLARAÇÃO DE NÃO ADMITIR TRABALHO FORÇADO OU DEGRADANTE

ENTRE RIOS DE MINAS, 26 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

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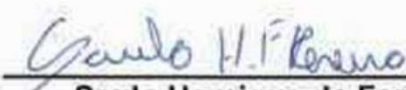
Saulo Henrique de Faria Pereira

DECLARAÇÃO

Eu Saulo Henrique de Faria Pereira portador do C.P.F. nº 04206039640, representante legal da empresa TECZAP Comércio e Distribuição LTDA , declaro sob as penas da Lei, que:

- Não possuímos nosso quadro funcional servidor público ou em nosso quadro funcional, servidor público ou dirigente de órgão ou entidade contratante ou responsável pela licitação;
- Os sócios da empresa não são pessoas ligadas a integrantes do poder Municipal, Estadual e Federal, (Prefeito, Vice-Prefeito, Vereadores servidores municipais e estaduais. Deputados estaduais, secretários estaduais, deputados federais, senadores, ministros, secretários federais, presidente da república, vice presidente da república) por laço de matrimônio ou parentesco afim ou consanguíneo até o segundo grau, ou por adoção, nos termos da lei.
- Comprometemo-nos a garantir o prazo de validade dos preços e condições constantes da presente proposta por 30 dias corridos a partir da data da apresentação da mesma;
- Asseguramos ter pleno conhecimento da legislação pertinente à contratação em pauta e demais condições previstas no Edital e seus anexos;
- Não se encontra cumprindo as penalidades previstas nos incisos III ou IV do artigo 87 da Lei Federal nº 8.666 de 1993.

Entre Rios de Minas, 25 de Abril de 2024.



Saulo Henrique de Faria Pereira

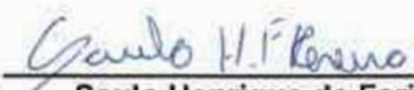
DECLARAÇÃO DE INFORMAÇÕES ADICIONAIS

ENTRE RIOS DE MINAS, 25 DE ABRIL DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

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Saulo Henrique de Faria Pereira

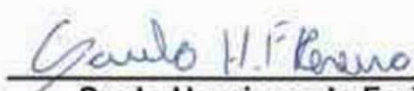
ENTRE RIOS DE MINAS, 02 DE MAIO DE 2024.

CNPJ: Fundação de Empreendimentos Científicos e Tecnológicos - FINATEC

Seleção Pública N.º 048/2024

Resposta diligência

- Servidor Dell R6615
- https://i.dell.com/sites/csdocuments/Product_Docs/en/poweredge-r6615-spec-sheet.pdf
- Processador: AMD EPYC 9124
- Memória: 4 x módulos de 32GB DDR5 RDIMM, 4800MT/s Dual Rank (ou 2 módulos de 64GB RDMM), totalizando 128GB
- Gabinete: 1U, suporta 8 discos 2,5 NVMe (HWRAID Drives), Smart Flow, Front PERC 11 e Fonte de energia Redundante Dual, Hot-plug, (1+1), 800W e Painel Frontal com LCD (Bezel) e trilhos deslizantes para rack com braço gerenciador de cabos
- Controladora raid: Controladora PERC H755N
- Gerenciamento: iDRAC9 Enterprise 16G
- NVME: 2x NVMe Enterprise de 1.92TB Read Intensive AG Drive U.2 Gen4 with carrier em Raid1
- Placa de rede Adicional: Broadcom 57414 Dual Port 10/25GbE SFP28
- Slots: pci-e: 3x slots 16X Gen 5
- Acompanha cabos de energia e demais itens da proposta
- Garantia 36 meses On site



Saulo Henrique de Faria Pereira