



ASUS RS Product Proposal

RS521A-E12

(AMD Turin)

General Purpose Server Application

Broad Application Ecosystem



Virtualization



AI Inference and
Machine Learning



Data Center



HPC



Surveillance



Edge

GPU Optimized

2U, 1P

RS521A-E12-RS24U RS521A-E12-RS12U



Max GPU support for 1P GPU SKU,
Up to 2 x dual-wide GPU

Storage Optimized

1U, 1P

RS501A-E12-RS12U

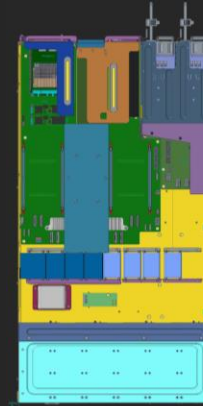


Max Storage support for 1P Server,
Up to 16 x storage bays for mid bay SKU

CPU Optimized

1U, 1P

RS501A-E12-RS4U



Built for high-performance CPUs,
CPU TDP support up to 450W

Cost Optimized

1U, 1P

RS501A-E12-RS4



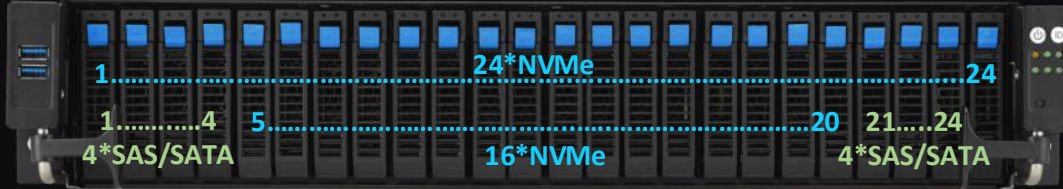
Cost optimized 1U server for general
purpose application.

Difference between RS521A-E12 and RS520A-E12

Series	RS520A-E12 series		RS521A-E12 series	
Model	RS520A-E12-RS24U	RS520A-E12-RS12U	RS521A-E12-RS24U	RS521A-E12-RS12U
MB	K14PA-U24		K14PA-U24- T *new power connector for Turin CPU *memory layout upgrade for higher frequency	
CPU Platform	Genoa		Turin or Genoa	
CPU TDP	400W		360W	400W
Memory	24 x DIMM slots, 2DPC (1 of 2) up to 4800 2DPC (2 of 2, 1R+1R) up to 4000 , 2DPC (2 of 2, 2R+2R) up to 3600		24 x DIMM slots, 2DPC (1 of 2) up to 5200 2DPC (2 of 2, 1R+1R) up to 4400 , 2DPC (2 of 2, 2R+2R) up to 4000	
Storage	Front bays: 24 x 2.5" Hot-Swap drive bays Support up to 24 NVMe or 16x NVMe + 8 SAS/SATA Rear bays: 2 x 2.5" SATA Hot-Swap drive bays	Front bays: 12 x 3.5" Hot-Swap drive bays Support up to 12 NVMe/SATA/SAS Rear bays: 2 x 2.5" SATA Hot-Swap drive bays	Front bays: 24 x 2.5" Hot-Swap drive bays Support up to 24 NVMe or 16x NVMe + 8 SAS/SATA Rear bays: 2 x 2.5" SATA Hot-Swap drive bays	Front bays: 12 x 3.5" Hot-Swap drive bays Support up to 12 NVMe/SATA/SAS Rear bays: 2 x 2.5" SATA Hot-Swap drive bays

RS521A-E12 Product Overview

24 x 2.5" Hot-swap Storage Bays



24NVMe can't support GPU

12 x 3.5" Hot-swap Storage Bays



2 x Additional Rear bay



PSU
1+1 2000W 80 PLUS Titanium
1+1 1600W 80 PLUS Titanium

2 x USB 3.2 Gen1
1 x VGA port
1 x RJ-45 Mgmt LAN
2 x 1 GbE LAN port

1 x OCP3.0 x16

SKU	RS521A-E12-RS24U	RS521A-E12-RS12U
Processor	1 x Turin/Genoa CPU, up to 360W	1 x Turin/Genoa CPU, up to 400W
Memory	24 x DIMM slots. 2DPC (1 of 2) up to 5200 2DPC (2 of 2, 1R+1R) up to 4400, 2DPC (2 of 2, 2R+2R) up to 4000	
GPU	4 x single-wide GPU (FHFL) or 2 x double-wide GPU (FHFL) *24 NVMe can't support GPU	
M.2	2 x M.2 (Gen4 x4, up to 22110)	
Storage	Front bays: 24 x 2.5" Hot-Swap drive bays Support up to 24 NVMe or 16x NVMe + 8 SAS/SATA Rear bays: 2 x 2.5" SATA Hot-Swap drive bays	Front bays: 12 x 3.5" Hot-Swap drive bays Support up to 12 NVMe/SATA/SAS Rear bays: 2 x 2.5" SATA Hot-Swap drive bays
Expansion slots	[24x NVMe] (can't support GPU) 1 x PCIe Gen5 x8, LP + 1 x OCP3.0 [16x NVMe] up to 5 PCIe Gen5 slots + 1 OCP3.0 2 x PCIe Gen5 x16, FHFL or 4 x PCIe Gen5 x8, FHFL 1 x PCIe Gen5 x8, LP 1 x OCP3.0 (PCIe Gen5 x16)	Up to 5 PCIe Gen5 slots + 1 OCP3.0 2 x PCIe Gen5 x16, FHFL or 4 x PCIe Gen5 x8, FHFL 1 x PCIe Gen5 x8, LP 1 x OCP3.0 (PCIe Gen5 x16)
I/O Ports	2 x USB 3.2 Gen1 ports (Front) + 2 x USB 3.2 Gen1 ports (Rear) 1 x VGA port (Rear) 1 x Management port (Rear)+ 2 x 1GbE LAN ports (Rear)	
Power supply	1+1 Redundant 80 PLUS 2000W/1600W Titanium PSU Power Supply	
Form factor and dimensions	2U, 449 (W) x 88.1 (H) x 840 (D) mm 17.68 (W) x 3.47 (H) x 33.07 (D) inches	

* HBA/RAID card is required to support SATA and SAS hard drives

RS521A-E12 Product Overview

Top view

2x PCIe Gen5 x16, FHFL*
1x OCP 3.0 (Gen5 x 16)

1x PCIe Gen5 x8, LP

2x PCIe Gen5 x16, FHFL*

2 x M.2

Chassis intrusion

2 x Additional Rear bay support SATAIII

1 x Turin CPU or 1 x Genoa CPU

24 x RDIMM DDR5 slots
*2DPC (2 of 2) up to 4400
12 x RDIMM DDR5 slots
*2DPC (1 of 2) up to 5200

4 x redundant fans
(for redundant fans SKU only)

Dimensions

840mm x 449mm x 88.1mm

Front view

24NVMe can't support GPU

RS521A-E12-RS24U
24*2.5" storage bays

RS521A-E12-RS12U
12*3.5" storage bays

Rear view

2 x Additional Rear bay support SATAIII

1 x PCIe x 16 slot, FHFL(Gen5 x8 or x16 link)

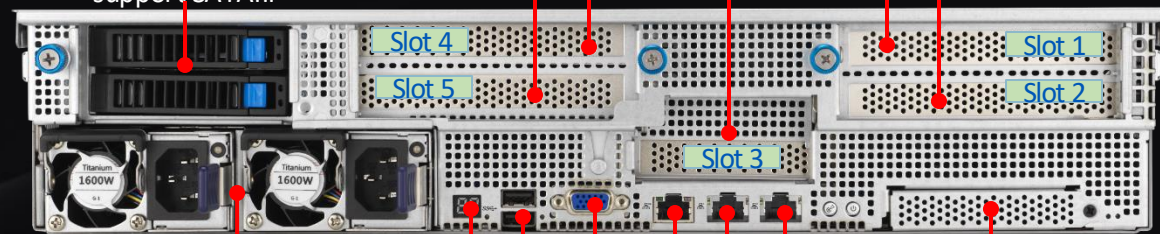
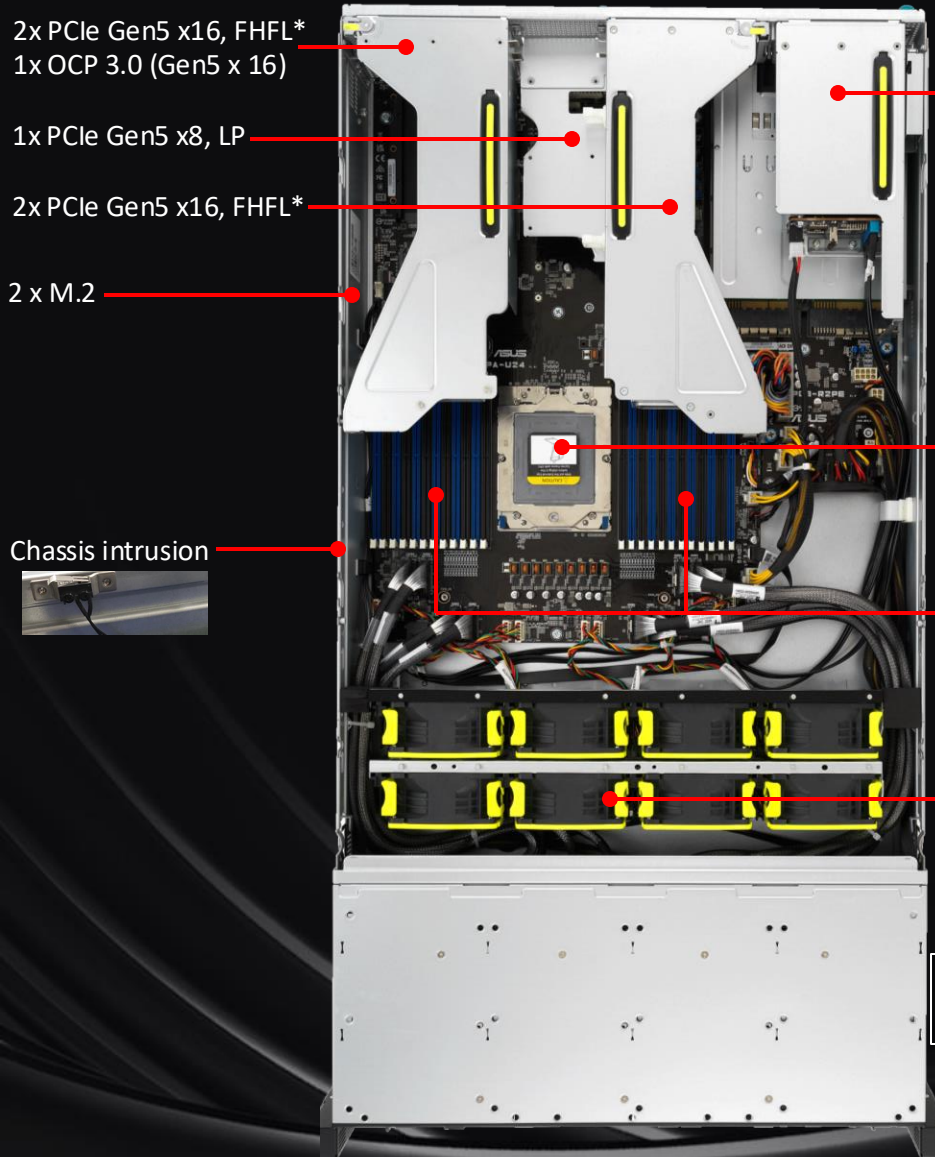
1 x PCIe x 16 slot, FHFL(Gen5 x8 or x0 link)

1 x PCIe x 16 slot, LP (Gen5 x8 link)

1+1 2000W 80 PLUS Titanium
1+1 1600W 80 PLUS Titanium

1 x Q code 1 x VGA 2 x 1 GbE LAN port

2 x USB 3.2 Gen1 1 x Mgmt. port 1 x OCP3.0 slot (Gen5 x16 link)

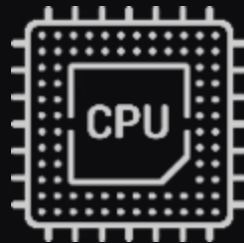


RS521A-E12 Key Features Highlight



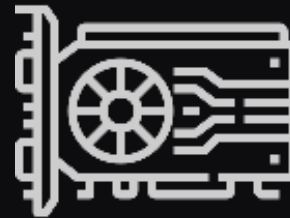
Form Factor

2U



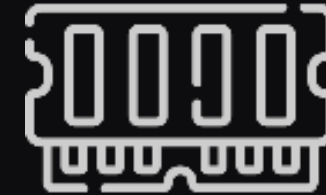
CPU Number

1



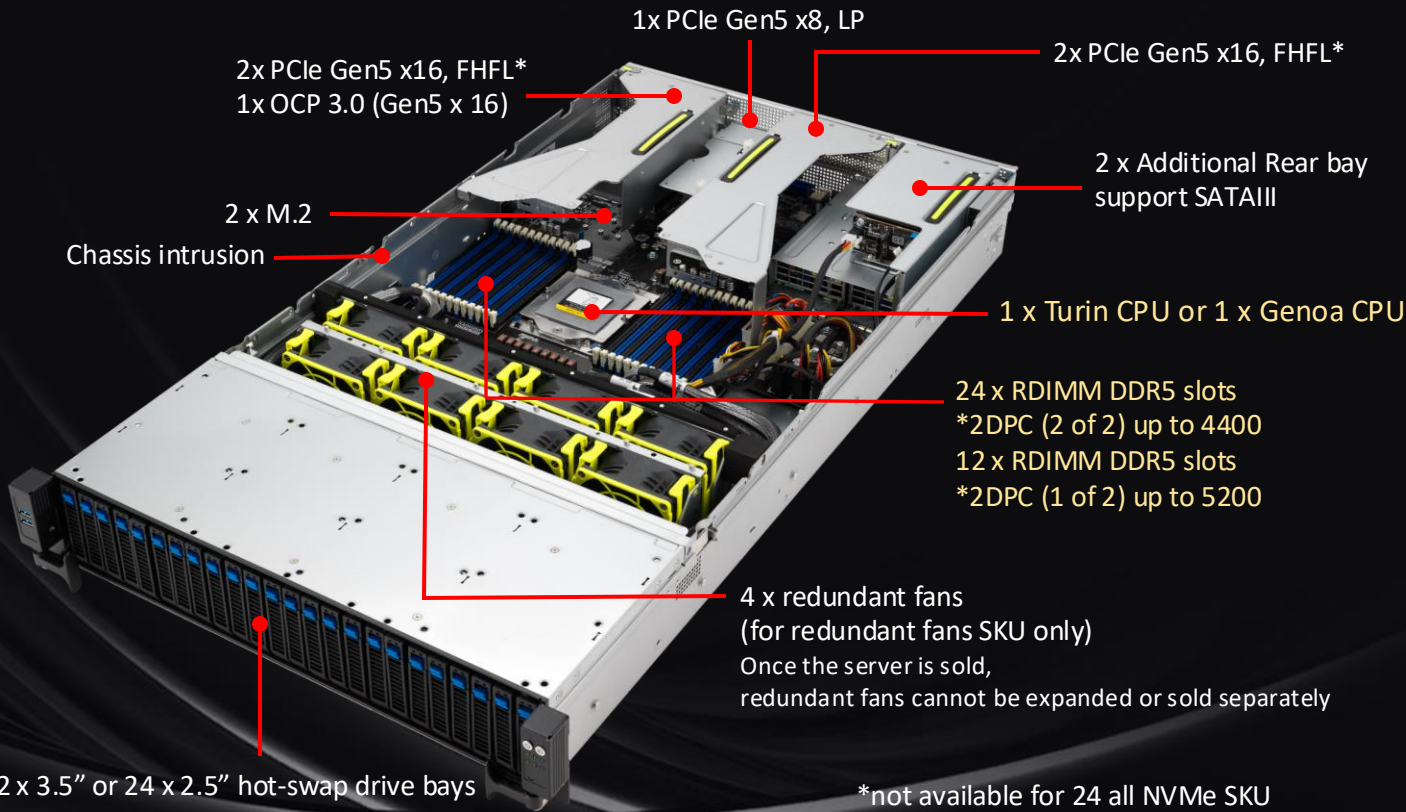
GPU Card

2 *Double Deck*



Memory Number

24



Flexible CPU options

- 2U 1 processor model support both Turin or Genoa CPU

High DIMM density with single socket

- With 2 DIMM per channel design, support up to 24 x DDR5 DIMM slots, up to 5200MHz

GPU-optimized design

- supports up to 2 dual-slot GPUs or 4 single-slot GPUs

Rear storage bays

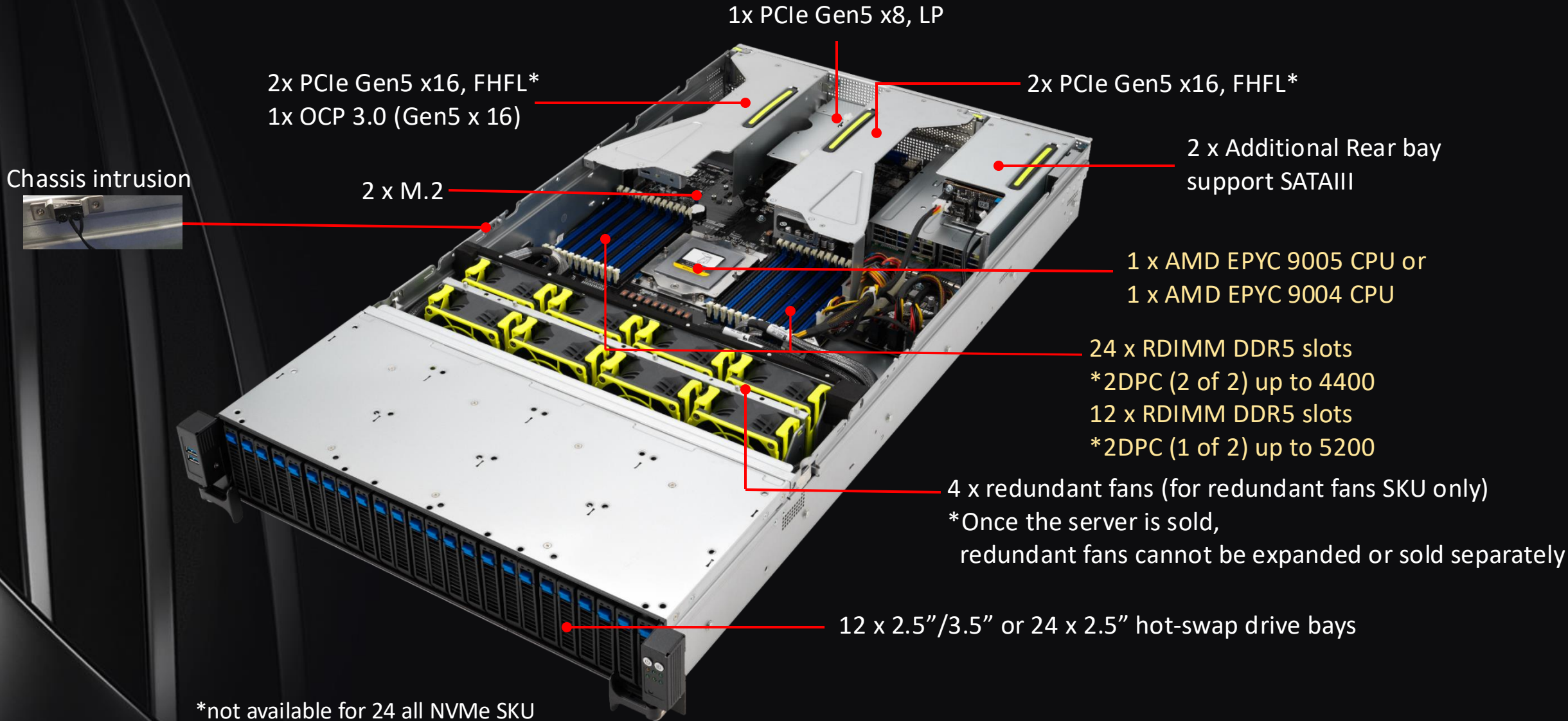
- With 2 x rear storage bays, supports up to 26 x hot swap storage bays.

Spec Table

Model	RS521A-E12-RS24U	RS521A-E12-RS12U
Processor	1 x Turin/Genoa CPU, up to 360W	1 x Turin/Genoa CPU, up to 400W
Memory	24 x DIMM slots. DDR5 5200/4800/4400/4000 RDIMM/ 3DS RDIMM 2DPC (1 of 2) up to 5200 2DPC (2 of 2, 1R+1R) up to 4400, 2DPC (2 of 2, 2R+2R) up to 4000	
GPU	4 x single-wide GPU (FHFL) or 2 x double-wide GPU (FHFL) *24 NVMe can't support GPU	
M.2	2 x PCIe x4 or 2 x SATAIII	
Fan	Optional Redundant Fans	
Expansion	[24x NVMe] (can't support GPU) 1 x PCIe Gen5 x8, LP + 1 x OCP3.0 [16x NVMe or 12x NVMe] up to 5 PCIe Gen5 slots + 1 OCP3.0 2 x PCIe Gen5 x16, FHFL or 4 x PCIe Gen5 x8, FHFL 1 x PCIe Gen5 x8, LP 1 x OCP3.0 (PCIe Gen5 x16)	up to 5 PCIe Gen5 slots + 1 OCP3.0 2 x PCIe Gen5 x16, FHFL or 4 x PCIe Gen5 x8, FHFL 1 x PCIe Gen5 x8, LP 1 x OCP3.0 (PCIe Gen5 x16)
Storage	Front bays: 24 x 2.5" Hot-Swap drive bays Support up to 24 NVMe or 16x NVMe + 8 SAS/SATA Rear bays: 2 x 2.5" SATA Hot-Swap drive bays *SAS support only from optional SAS HBA/RAID card	Front bays: 12 x 3.5" Hot-Swap drive bays Support up to 12 x NVMe/SATA/SAS Rear bays: 2 x 2.5" SATA Hot-Swap drive bays *SAS support only from optional SAS HBA/RAID card
Power Supply	1+1 Redundant 2000W/1600W 80Plus Titanium CRPS Power Supply	
NIC	2 x 1GbE LAN ports 1 x Management port	

** HBA/RAID card is required to support SATA and SAS hard drives

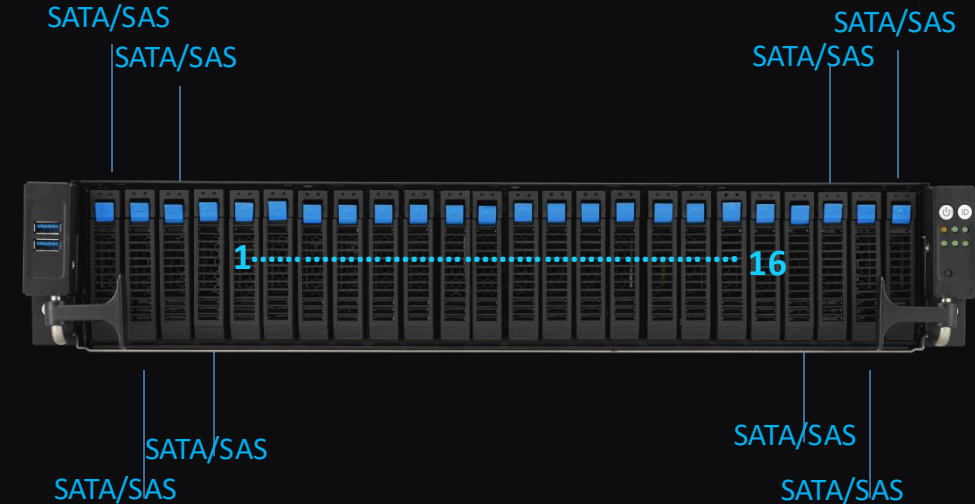
RS521A-E12 Series top view



RS521A-E12-RS24U Series Front view



24x NVMe (can't support GPU)

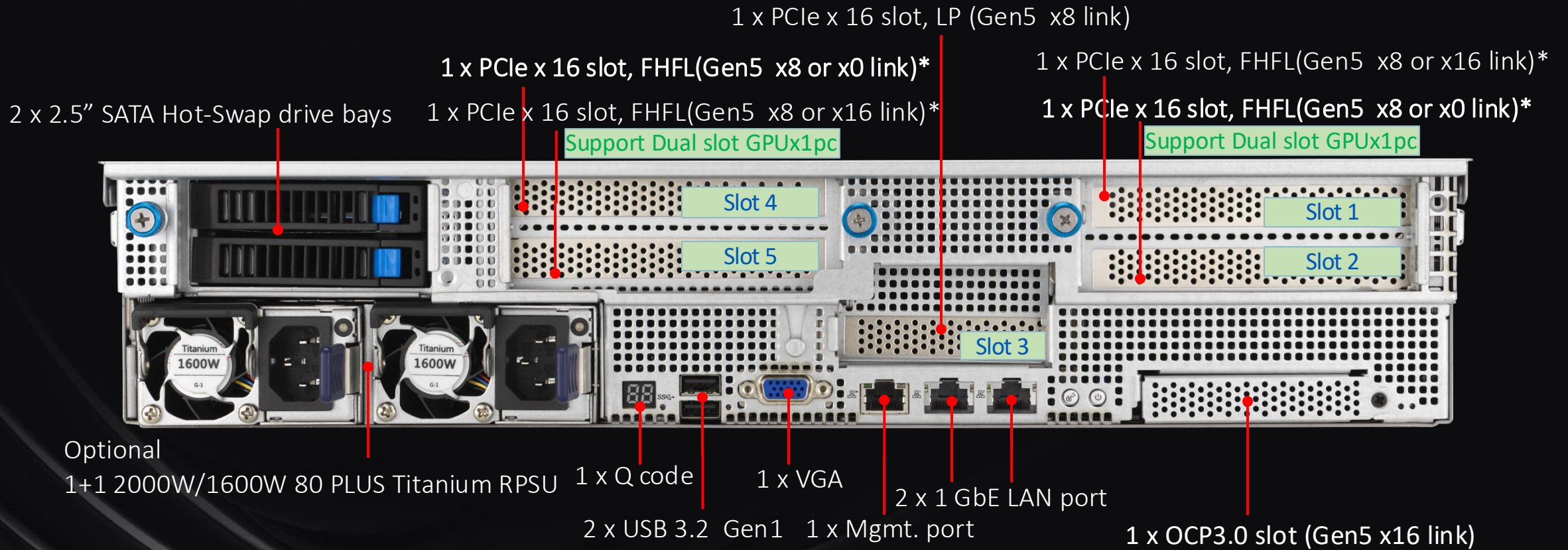


16x NVMe + 8x SAS/SATA (*from RAID card)

Please select RAID card when purchasing order and we will have assembling and standard testing before ship

*SAS support only from optional SAS HBA/RAID card

RS521A-E12-RS24U Series Rear view



*Slot1-4 NOT available for 24 all NVMe SKU

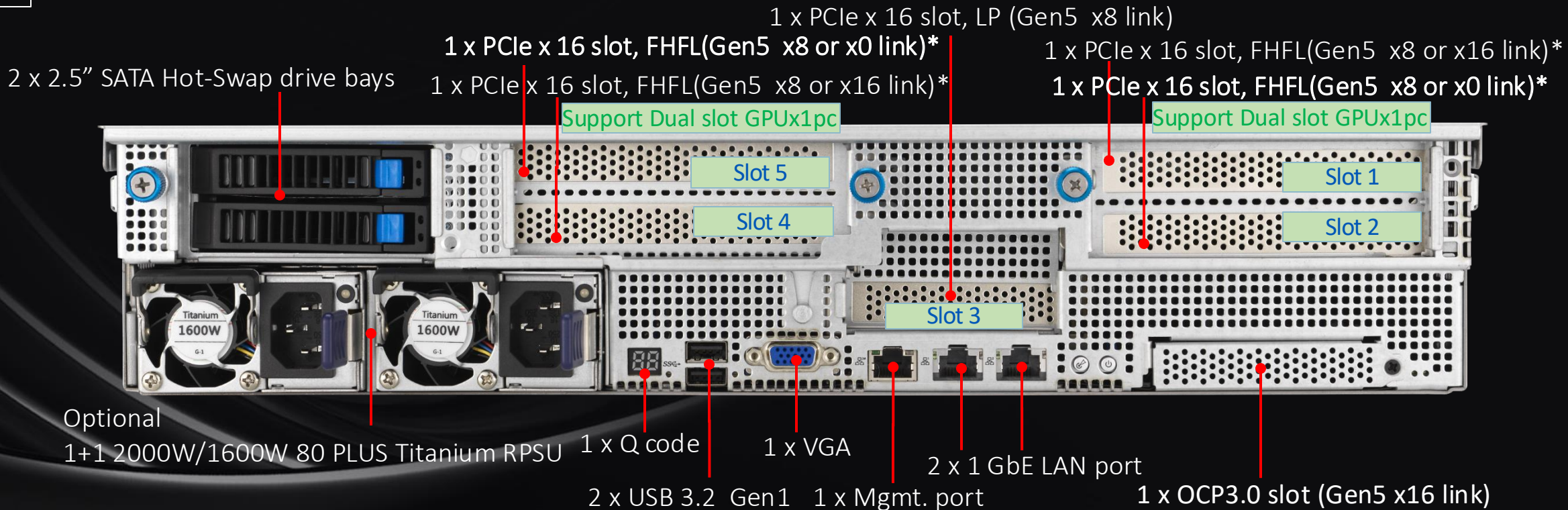
RS521A-E12-RS12U Series Front/Rear view

Front view

12 x 3.5" SATA/SAS/NVMe

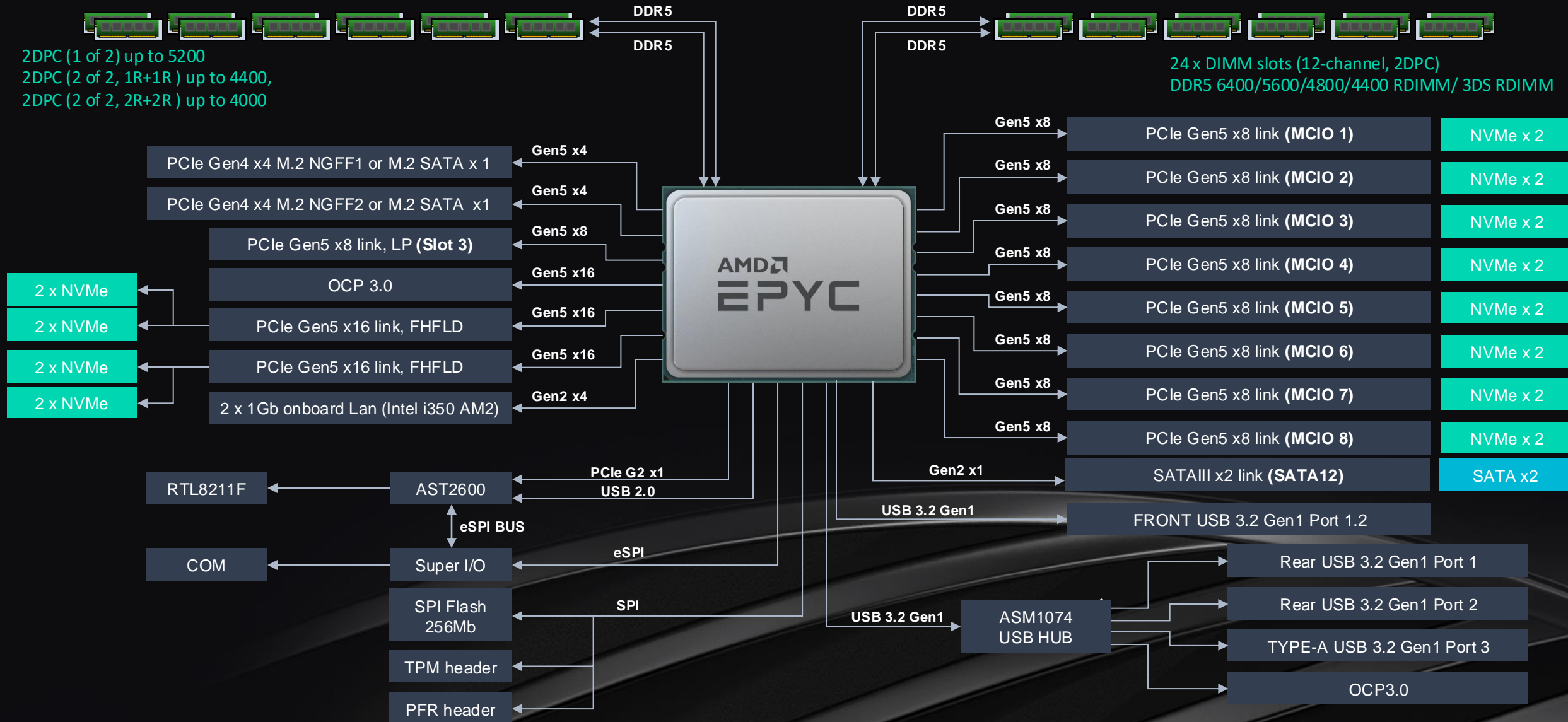


Rear view



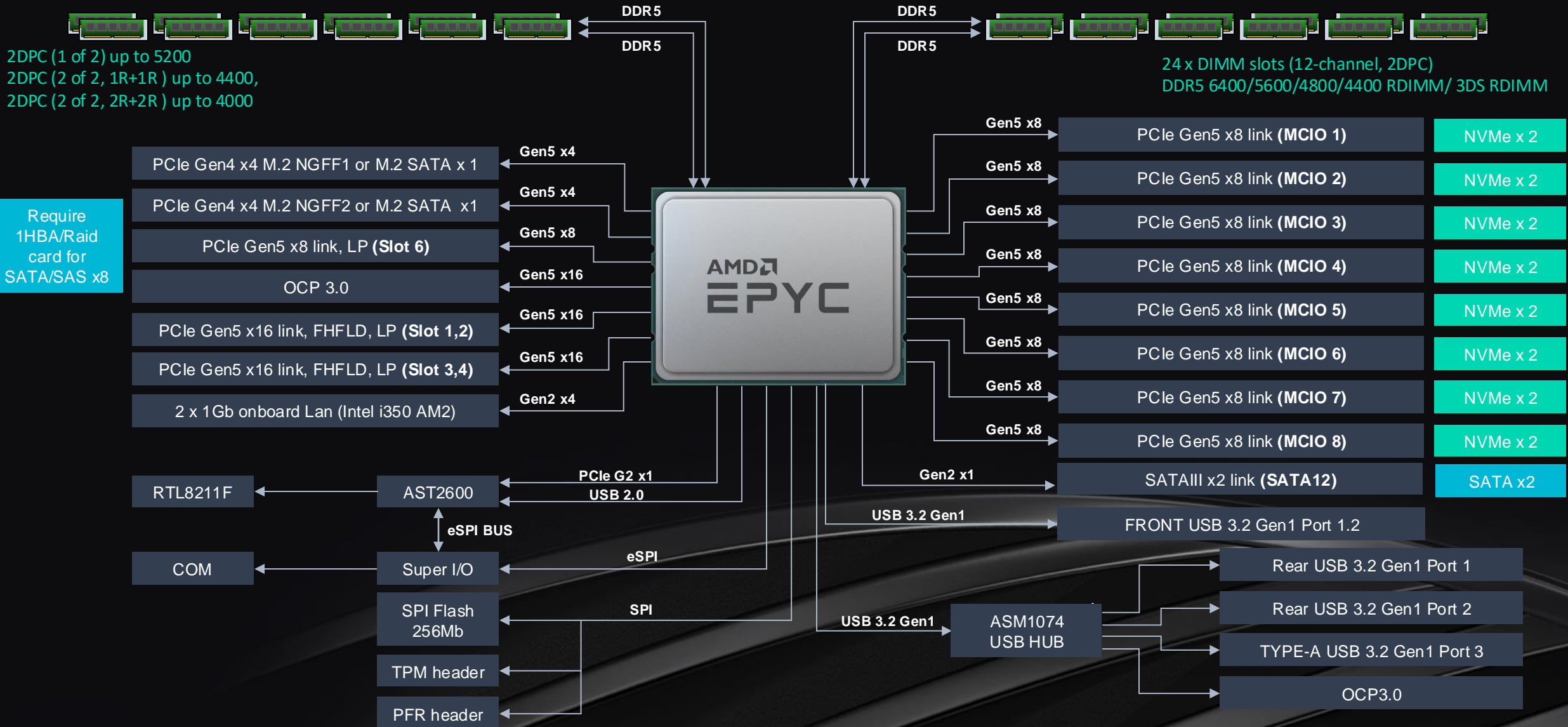
RS521A-E12-RS24U MB Block Diagram

(24 Nvme)

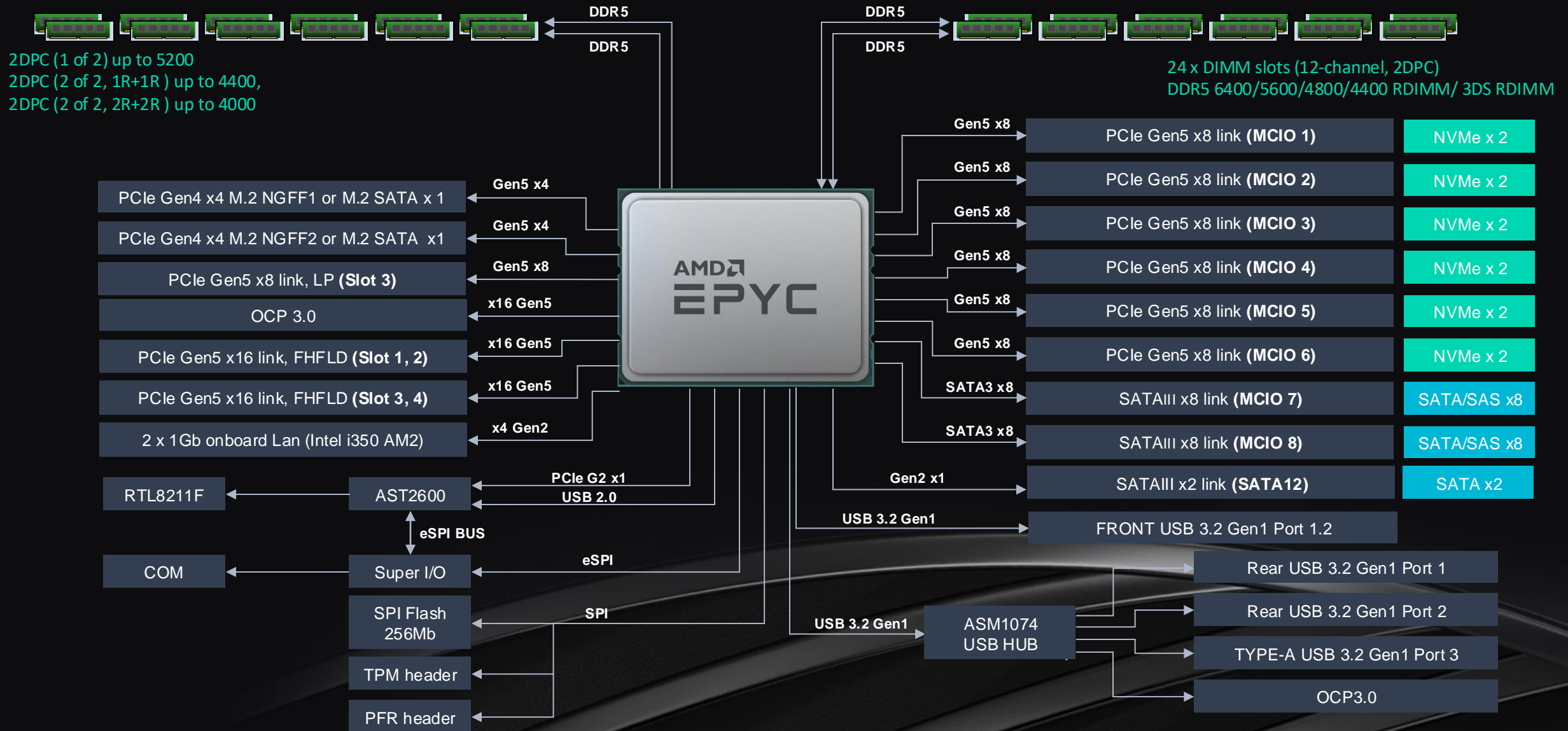


RS521A-E12-RS24U MB Block Diagram

(16Nvme+8SAS/SATA)



RS521A-E12-RS12U MB Block Diagram



RS521A-E12 Support Matrix

Configuration	RS521A-E12-RS12U			RS521A-E12-RS12U			RS521A-E12-RS24U		
Heatsink	2U STD Heatsink			2U STD Heatsink			2U STD Heatsink		
Storage	12*3.5"			12*2.5"			24*2.5"		
Memory	DDR5 6400 96GB		DDR5 6400 64GB	DDR5 6400 96GB			DDR5 6400 96GB		
Ambient Temperature	25°C	30°C	35°C	25°C	30°C	35°C	25°C	30°C	35°C
CPU									
450W ~	X	X	X	X	X	X	X	X	X
400W	X	X	X	O	O	X	TBD	X	X
360W	X	X	X	O	O	O	O	O	X
~ 320W	O	O	O	O	O	O	O	O	O
GPU	RS521A-E12 do not recommended to pair with single-slot GPU. If there is a need for single slot GPU, please contact ASUS.								
RTX 6000 ADA	X	X	X	O	O	X	O	O	X
RTX 5000 ADA	O	X	X	O	O	TBD	O	O	TBD
RTX 4500 ADA	O	X	X	O	O	TBD	O	O	TBD
RTX 4000 ADA	O	X	X	O	O	TBD	O	O	TBD
RTX A6000 / RTX A5500 RTX A5000 / RTX A4500 RTX 4000	TBD	X	X	O	O	TBD	O	O	TBD
A100	X	X	X	O	O	TBD	O	O	TBD
L40S	X	X	X	O	O	X	O	O	X
L40	X	X	X	O	O	TBD	O	O	TBD
A40	X	X	X	O	O	X	O	O	X
A30	X	X	X	O	O	TBD	O	O	TBD
A16	X	X	X	O	O	TBD	O	O	TBD

RS Series General Purpose Servers

AMD Milan, Genoa, Turin Platform

Production | Engineering | Planning

