

ASUS Server & Workstation Product Roadmap

Session 2 : General Purpose Purley System

Things you need to know

Both Intel and AMD Launch new Platform in 2017 June/July

Intel → Purley AMD → EPYC

1. ASUS New models are as below, some models are delayed, but you can still do the pre-sales first

- Purley MB DP : Z11PR-D16, Z11PA-D8
- Purley MB UP : Z11PA-U12, Z11PA-U12/10G-2S

Session 1
2017/7/14

- Purley DP 1U : RS700-E9/RS4, RS700-E9/RS12
- Purley DP 2U : RS520-E9/RS8, RS520-E9/RS12
- Purley GPU : ESC4000 G4 → Move to session 4

Session 2
2017/7/28

- EPYC MB DP : NA
- EPYC MB UP : NA

- EPYC DP 1U : RS700A-E9/RS4, RS700A-E9/RS12
- EPYC DP 2U : RS720A-E9/RS24-E
- EPYC GPU : NA
- Workstation (High-End PC) ESC300 G4, ESC500 G4 SFF

Session 3
2017/8/11

2. Why ASUS Server, ACC, HCI, VCA Business models ARE NOT ready yet. We will keep pushing.

Session 4
2017/8/25

3. Coming Hero product are very interesting.

- KNPA-D8
- ESC8000 G4 / RS720Q / ESC 4000 G4

WW30 NPI Schedule

SVR System

Model	NPI Notice & Beta Sample Survey (N-14)	Beta Sample ETD (N-12)	Ready for Preconfig & Quotation (N-10)	1st lot MP Demand Collect (N-10)	Ready for FCST (N-8)	Ready for Order (N-2)	MP 1 st ETD (N)
RS700-E9	RS4 : W21 RS12 : W25	RS4 : W23 RS12 : W27	RS4 : W25 RS12 : W29	RS4 : W25 RS12 : W29	RS4 : W27 RS12 : W31	RS4 : W33 RS12 : W37	RS4 : W35 RS12 : W39
RS700A-E9	RS4 : W20 RS12 : W24	RS4 : W26 RS12 : W32	RS4 : W28 RS12 : W33	RS4 : W28 RS12 : W33	RS4 : W29 RS12 : W34	RS4 : W32 RS12 : W36	RS4 : W36 RS12 : W40
RS720A-E9	RS24-E : W22	RS24-E : W30	RS24-E : W31	RS24-E : W31	RS24-E : W32	RS24-E : W34	RS24-E : W38
RS520-E9	RS12 : W29 RS8 : W28	RS12 : W31 RS8 : W30	RS12 : W33 RS8 : W32	RS12 : W33 RS8 : W32	RS12 : W35 RS8 : W34	RS12 : W41 RS8 : W40	RS12 : W42 RS8 : W41
ESC4000 G4	G4X:W13 G4:W13	G4X: W27 G4: W27	G4X: W29 G4: W32	G4X: W29 G4: W32	G4X: W31 G4: W34	G4X: W37 G4: W40	G4X: W41 G4: W44

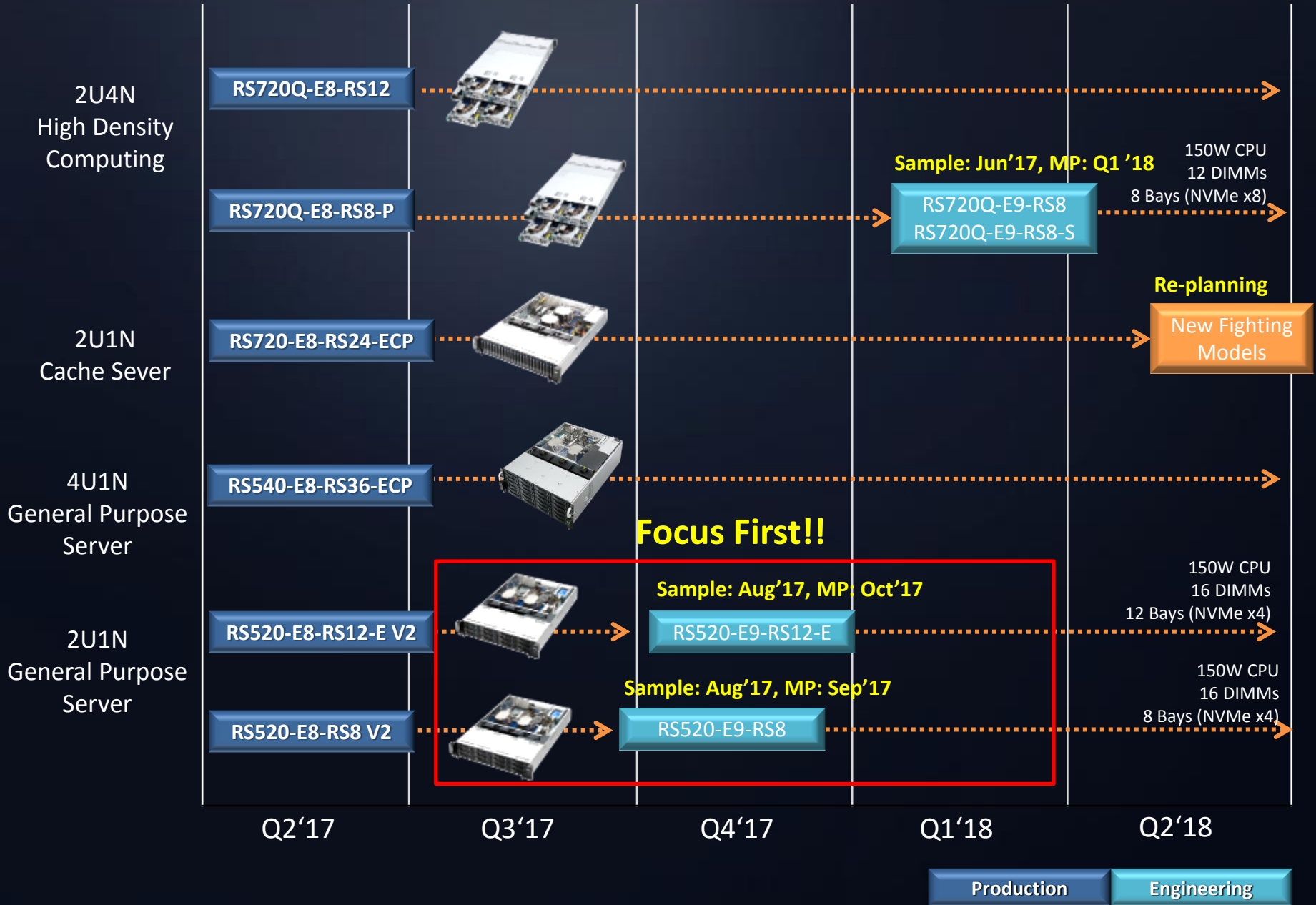
WS/PC System

ESC300 G4	W15	W17	W27	W26	W27	W27	W29
ESC510 G4 SFF	-	-	W35	W29	W35	W37	W39

SVR Motherboard

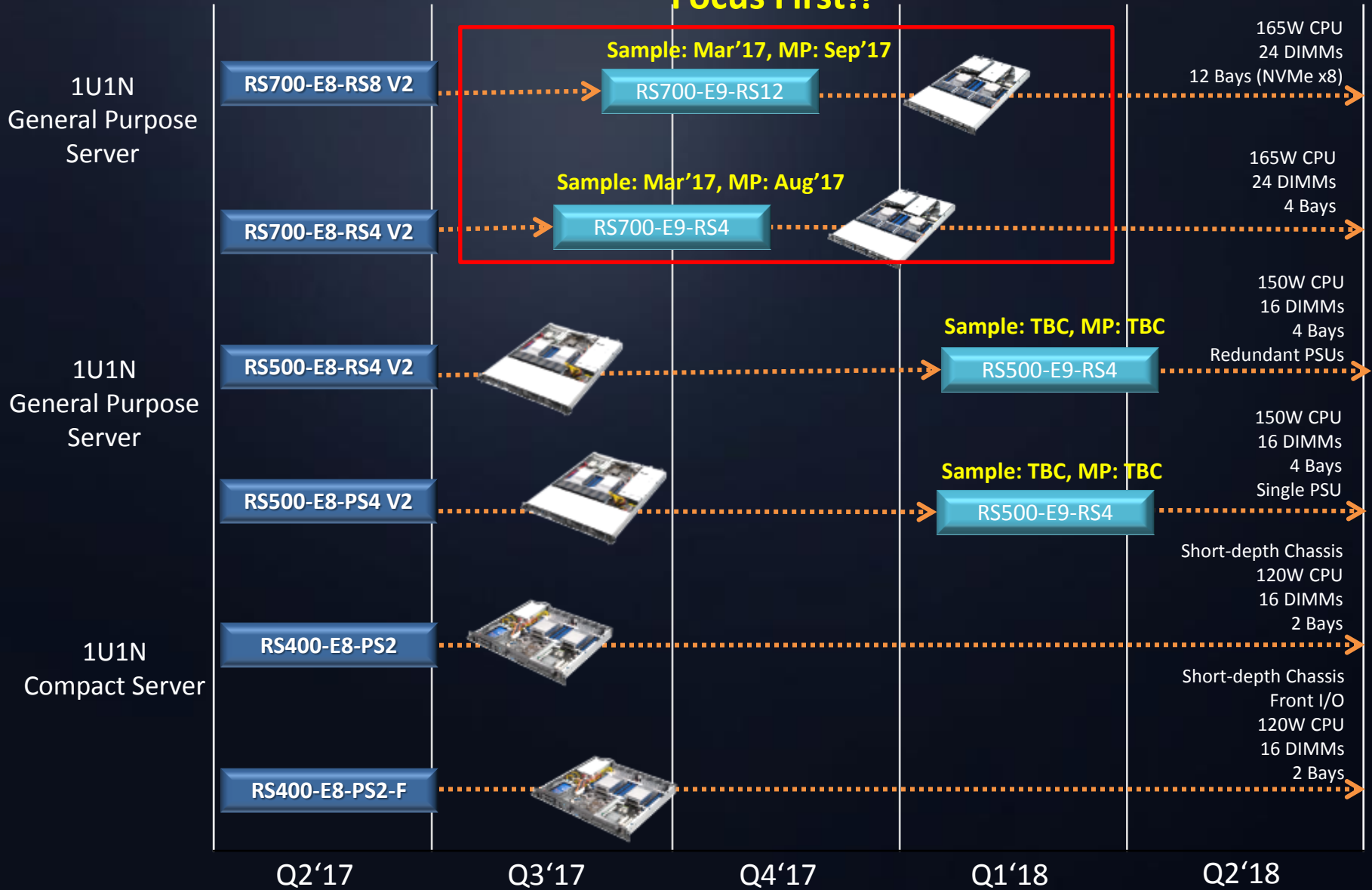
Z11PR-D16	W23	W25	W27	W27	W29	W35	W37
Z11-PA-U12	W26	W31	-	W33	W35	W41	W43
Z11-PA-D8						W46	
WS C621E SAGE	W28	-	-	W28	W30	W36	W38

2-Way Rack Servers Roadmap



2-Way Rack Servers Roadmap

Focus First!!



Server Product Segmentation



RS720Q-E9-RS12
RS720Q-E9-RS8

2U 4 Nodes
Density server

MP @ 2017 Q1

**High Density
Computing**



RS720-E9-RS24-E
RS720-E9-RS24-U

2U 24+24
cache sever

NA Yet



RS700-E9-RS12
RS700-E9-RS4

1U 24 DIMMs
high
performance
server

**MP @ WW35
--WW39**

Focus First!!



RS520-E9-RS12-E
RS520-E9-RS8

2U 16 DIMMS
application
server

**MP @ WW41
--WW42**



RS500-E9-RS4
RS500-E9-PS4

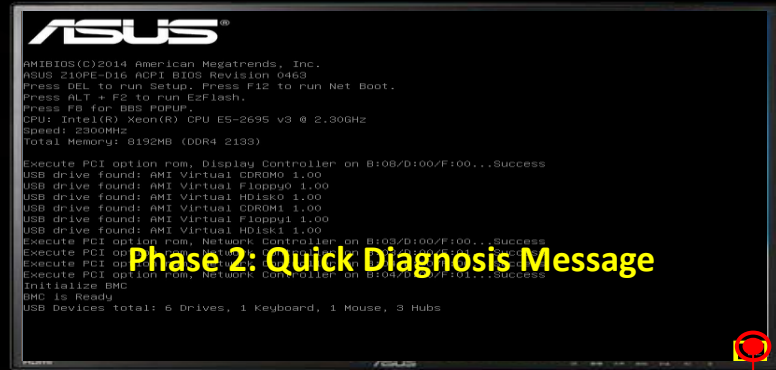
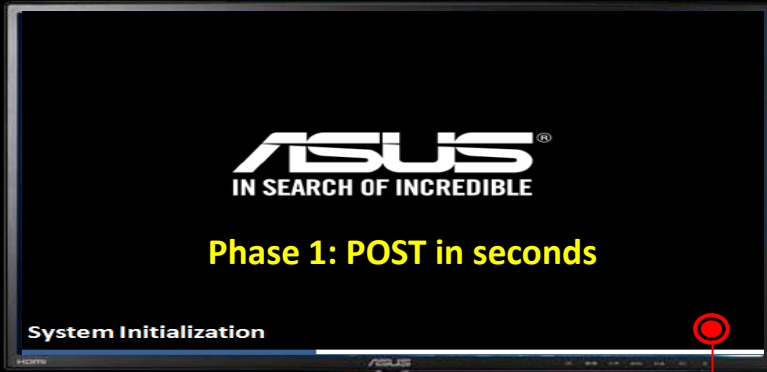
1U mainstream
server
NA Yet

General Purpose Server

ASUS Purley SVR MB

General Features

Quick Initialization Guidance



- Instantly access to system initializing status
- Warning message when system memory abnormal
- BMC DM LAN IP notice

System Memory Abnormal
BMC DM_LAN1 IP Address: 192.168.1.116

BB

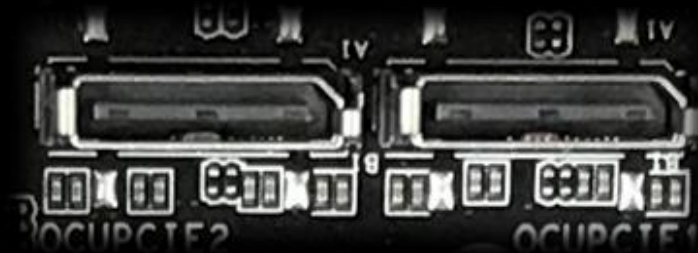
```
AMIBIOS(C)2015 American Megatrends, Inc.  
ASUS Z11PP-D24 ACPI BIOS Revision 0204  
BMC Firmware Revision 1.3  
System Serial Number SYS-123456789  
Press DEL to run Setup. Press F12 to run Net B  
Press ALT + F2 to run EzFlash.  
Press F8 for BBS POPUP.  
CPU: Intel(R) Xeon(R) Platinum 8176 CPU @ 2.10G  
Speed: 2100MHz  
Total Memory: 8192MB (DDR4 2133)  
  
Execute PCI option rom, Display Controller on B  
USB drive found: SanDisk  
USB drive found: AMI Virtual CDROM0 1.00  
USB drive found: AMI Virtual Floppy0 1.00  
USB drive found: AMI Virtual HDisk0 1.00  
USB drive found: AMI Virtual HDisk1 1.00  
Execute PCI option rom, Network Controller on B  
Initialize BMC  
BMC is Ready  
DIMM Train Error: DIMM_B1  
USB Devices total: 5 Drives, 1 Keyboard, 1 Mous
```


Variety High Speed Storage Solutions

Wide-coverage on Storage types by demands

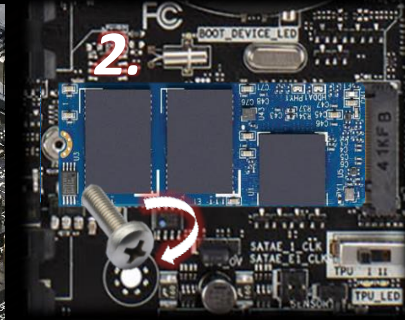
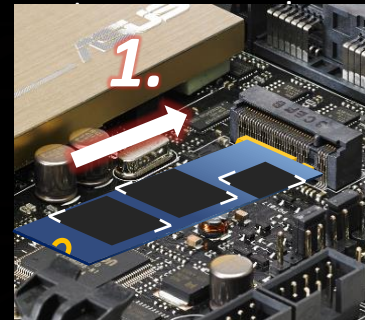
Option 1: Onboard Oculink for NVMe (Only Z11PA Series)

- Up to 2 Native Oculink **PCI-E Gen3 x4** ports





Option 2: M.2 (NGFF)

- NGFF Type22110 (**Z11PR-D16, 2280**), Capacity up to **128~512GB**
- Up to 2 M.2 for **mirror**
- 2 step easy installation
- Independent OS drive without occupying



Option 3: PIKE II on Z11

- Latest 12Gb/s SAS doubles the data rate compared to previous generation
- Multiple HBAs on a single board for performance-driven storage servers

	Model	Interface	Ports	RAID Support	Note
	PIKE II 3108-8i	PCI-E Gen3	8-port 12Gb/s SAS	H/W RAID 0, 1, 10, 5, 6, 50, 60	Standard PCI-E
	PIKE II 3008-8i	PCI-E Gen3	8-port 12Gb/s SAS	RAID 0, 1, 10, 1E	Standard PCI-E

I/O Flexibilities

Storage HBA:

- Model: PIKE II 3008/3108 Series
- Support List: Z11/Z10/Z9/AMD Platforms



PIKE II 3008*



PIKE II 3108*

Networking HBA:

- Model: PEM-FDR, PEB-10G Series
- Support List: Z11/Z10/Z9/AMD Platforms



PEM-FDR*



PEB-10G/57840-2S

PEB-10G/57811-1S



PEB-10G/57840-2T

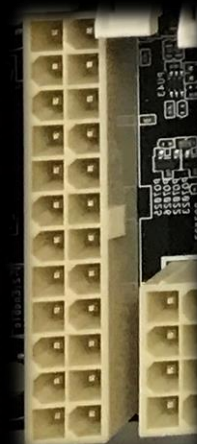
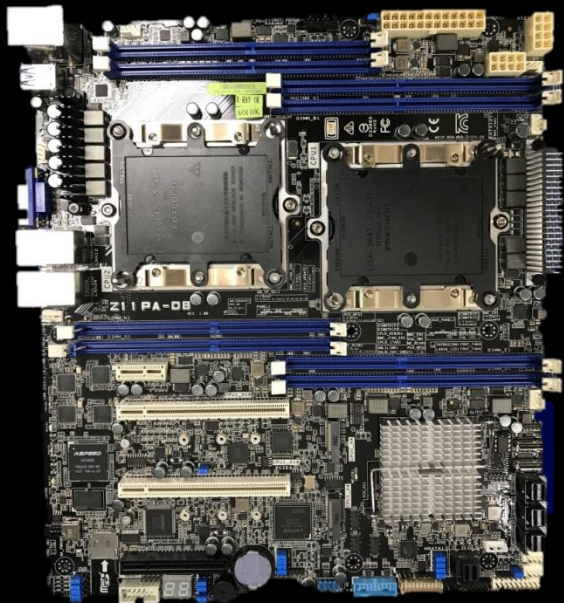
PEB-10G/57811-1T

* Only compatible with ASUS Platform

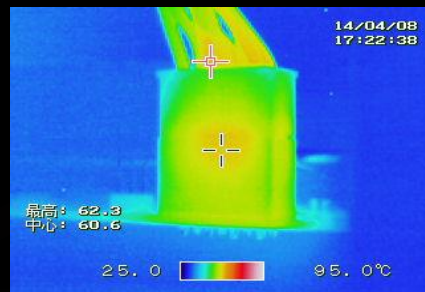
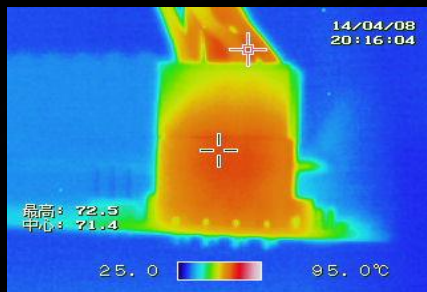
Most Reliable ASUS ProCool Power Conn.

ProCool Power Connectors with no hollows areas enable lower Impedance and faster heat dissipation that create cooler operating temperature

ProCool Power Connector



ProCool power connector



Improve **10 °C**, more
endurance in ultimate level

ASUS Control Center (1/2)

Best IT Management Software

ASUS Control Center can provide you with:

Single Portal, Simplified IT Management

- The centralized IT management software that provides comprehensive control of ASUS server, workstation, commercial desktop, notebook, AiO, thin client, and digital signage.

Monitor Hardware and Software, Physical and Virtual

- Monitors hardware sensors (temperature, fan, voltage) and utilizations (CPU, memory, HDD, networking) with notification setting
- Software dispatch and applications monitoring
- Remote desktop and power control
- VMware ESXi support (additional license)

Saving Great Resources for Valuable Tasks

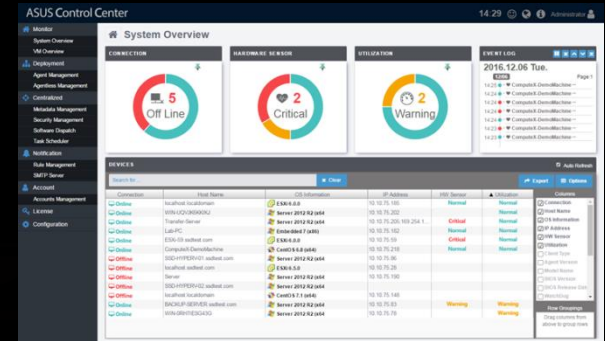
- Task Scheduler handles routine jobs such as power on/off control, software dispatch, USB control, and scripts.

Enhance Information Security

- USB storage blocking, watch dog function
- Account management with AD integration (additional license)

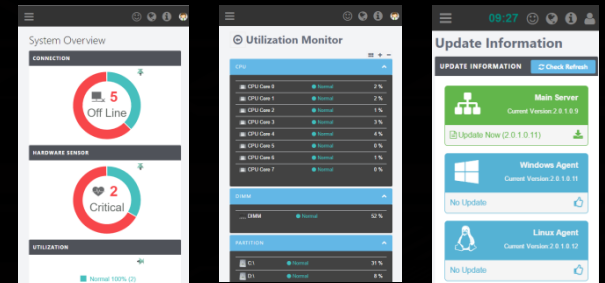
Modern IT, Friendliest User Interface

- Intuitive dashboard for monitoring IT environment anytime, anywhere (HTML5 UI for smart devices to access)
- Fast deployment just in minutes
- Metadata editor provides flexible asset tags
- Uninterrupted Live Update



ASUS Control Center

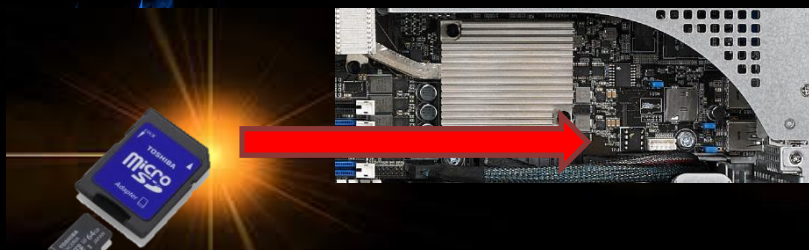
Provide **high visibility** and **best IT management experiences** across ASUS enterprise and commercial products



Optimized Mobile Display

ASMB9 New Function Highlight

New generation **ASUS Server Management Board- ASMB9**



MicroSD Card support

Save and load log easily, customer can review the log even BMC is not working.

* Z11PA-U12 doesn't support MicroSD

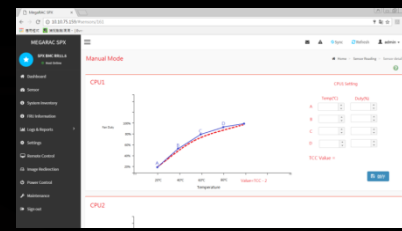
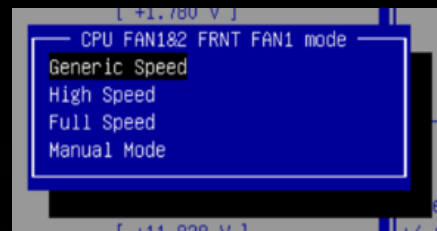
New Fan Control

Current Generation

- Adjust fan curve via BIOS
- Command mode interface
- Fixed FAN policy
- Switch FAN speed by restarting system

Next Generation

- Adjust fan curve via BMC
- Graphical User Interface (GUI)
- Flexible FAN policy
- No Reboot needed
- Remote control fan curve



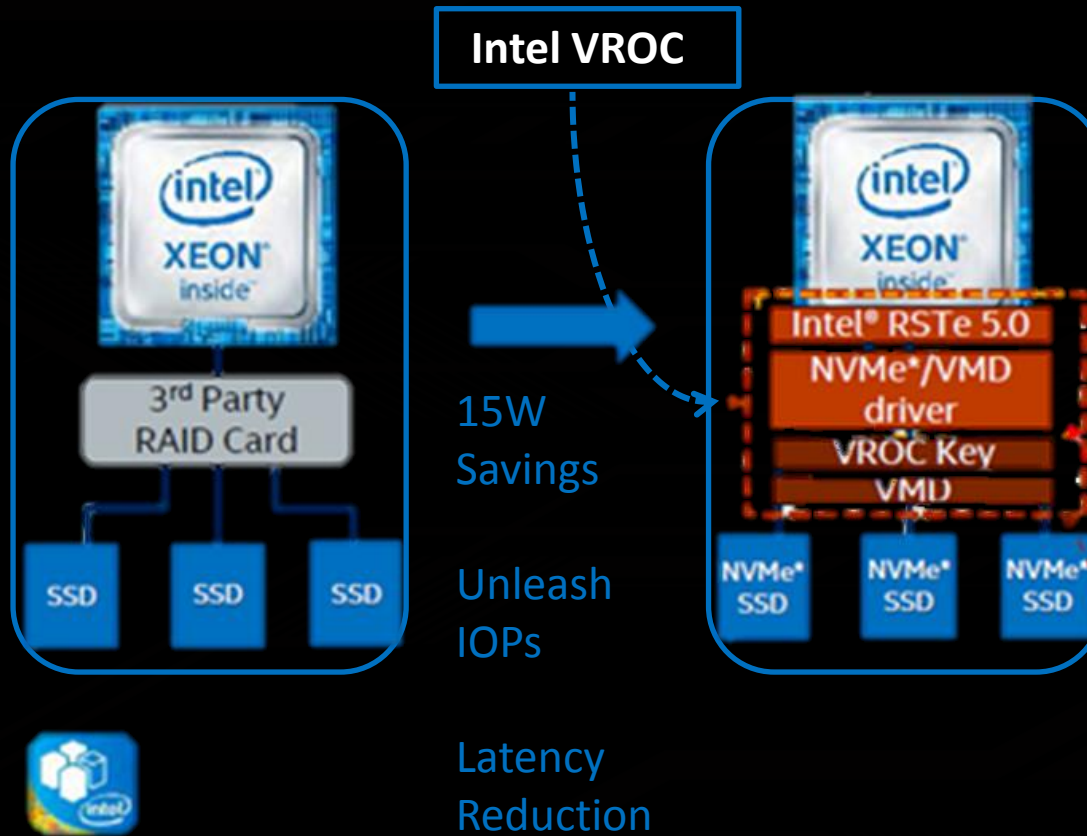
Support VROC for NVMe SSD

Z11 MB design in VROC (Virtual RAID on CPU) enabling connector

Optional Intel VROC module to support RAID for Intel certificated NVMe SSD

15W power consumption than using hardware RAID card

Cost saving than using hardware RAID card



Optimized for the Intel® Volume Management Device (Intel® VMD) technology of Skylake

Performance: Reduces Latency, Increased IOPs/Bandwidth

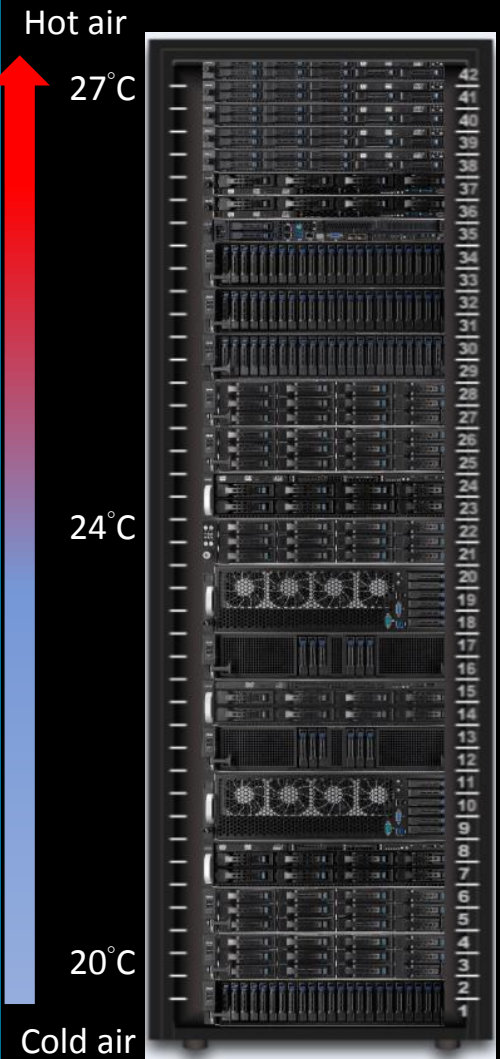
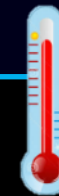
- **Reliability:** Power Loss Protection, Close RWH**
- **Boot(W):** PCIe* RAID in Xeon platforms
- **Manageability:** Hot Plug, Surprise removal, Enclosure Management
- **TCO:** Reduce Power

Intel VROC enables NVMe* boot on RAID and volume management

ASUS Purley SVR System General Features

Smart Thermal Radar Design

Save 20% Fan Power Consumption!



1

More ambient thermal sensors in different locations to detect physical environment temperature.

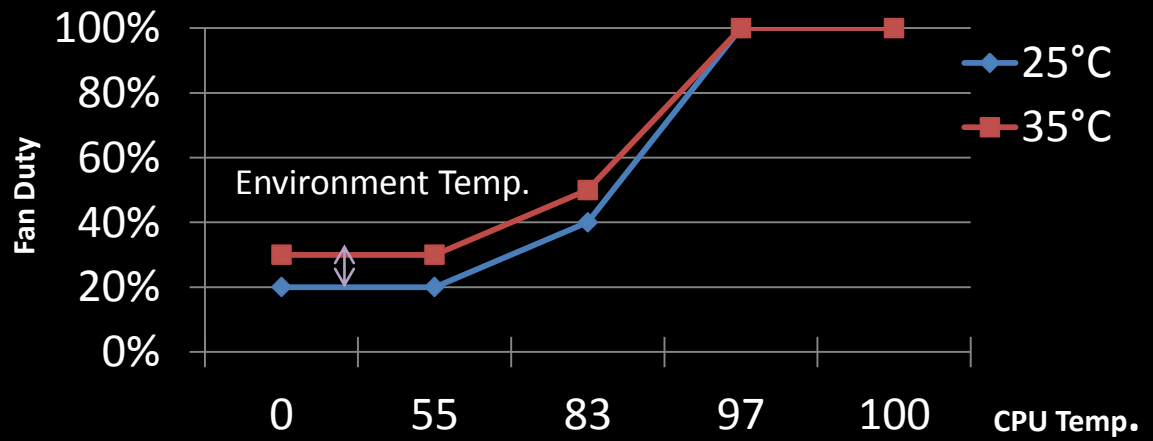
CPU	Memory	GPU Card	NVMe SSD

10G OCP LAN Card

Front Panel Board

2

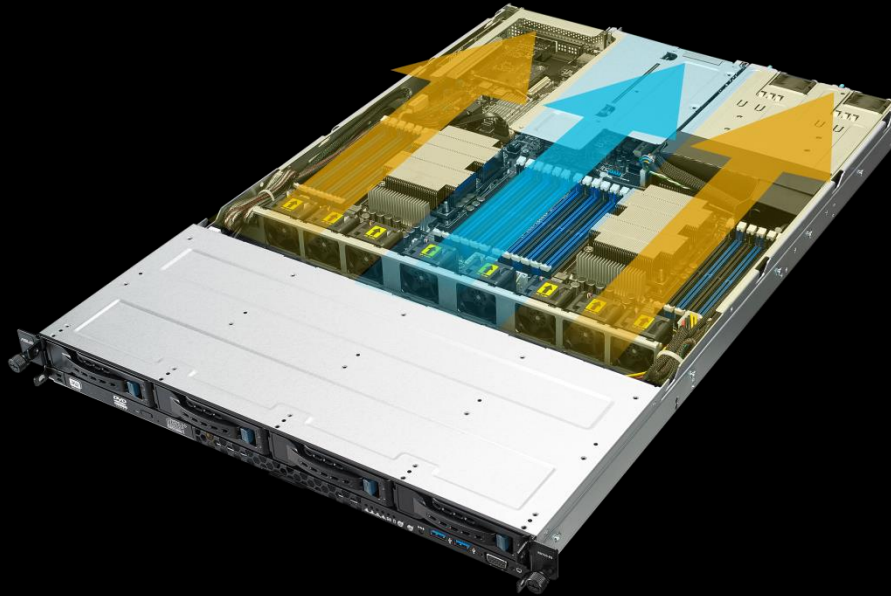
Dynamically change FAN speed for different thermal area to get better power efficiency!



Power and Cooling Efficiency (RS700-E9)

➤ Partition Air Flow






- Divide three main air flow partition, each 3 Zones have their own fan curve
- Based on partition temperature, fan speed can be adjusted to increase cooling efficiency and avoid power waste



RS700-E9 Series

Default nVME Support

- Default nVME support, no need upgrade kit.
- Port-to-port offers faster speed & cost-effective than PCIe Switch IC

NVMe Number	Model Name
4	 RS700-E9-RS12
4	 RS520-E9-RS8
4	 RS520-E9-RS12-E
8	 RS720Q-E9-RS8
8	 RS720Q-E9-RS12

Dual M.2 Support

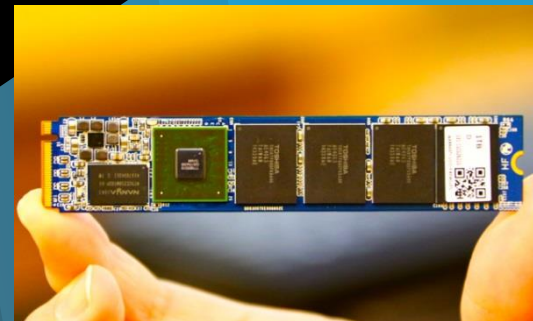
➤ Flexible for 22110 / 2280 / 2260 / 2242, up to 2TB storage

Additional Storage for OS

Speed up the boot



22110 M.2



	RS700-E9 Series	RS720-E9 Series	RS520-E9 Series
Dual M.2 Form Factor	22110 2280 2260 2242	22110 2280 2260 2242	2280 2260 2242
SATA M.2	V	V	V
PCIe M.2	V	V	V
SATA Raid	V	V	V
PCIe Raid	X	X	V (VROC)

With x4 PCI Express 3.0 Bandwidth

5.3X

32 Gb/s PCIe Gen3 x4

FASTER

6 Gb/s SATA III

Omni-Path Architecture (OPA) Support

(RS700, RS720Q)

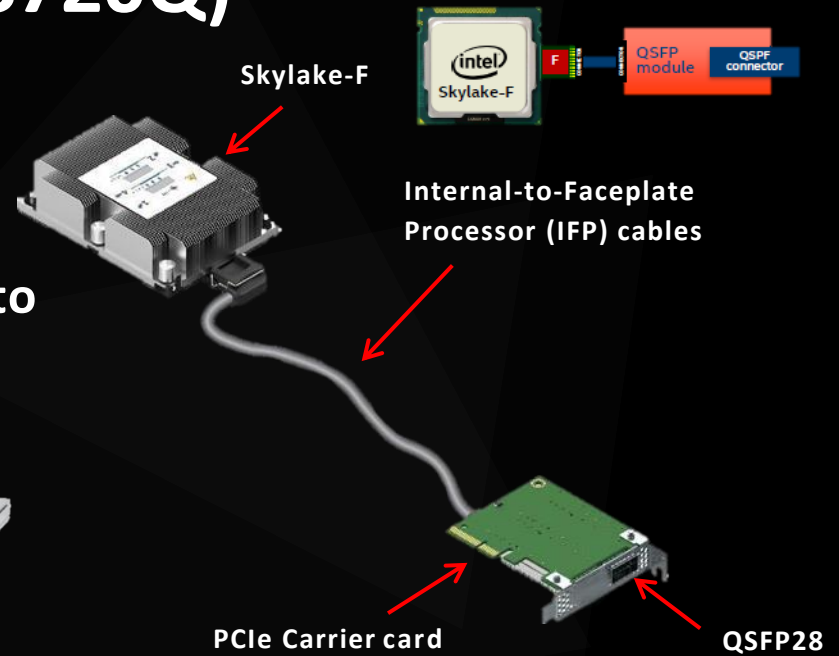
HPC Fabric:
Integrate
many nodes to
perform as a
single system



RS700-E9



RS720Q-E9



Omni-Path vs. EDR

Up to
17%

Lower
Latency

Up to
26%

Compute Node

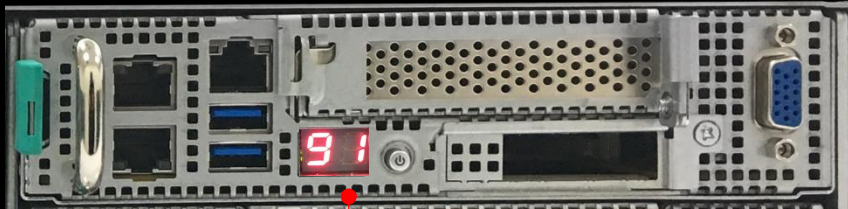
Up to
60%

Lower Power

Visible Status for Easy Maintenance

➤ Visible Q-Code Diagnostic Indicator

Design for quickly hardware boots check



- B0 = DIMM detection
 - B7 = Memory training
 - BF = Memory training finish
 - 19 = SB(Southbridge) initialization
 - 79 = CSM(Compatible Support Mode) initialization
 - 94 = Set PCIE devices order
 - 95 = PCIE devices request resource
 - 96 = Allocate resource to PCIE devices
 - 91 = Connect device event
 - B2 = Legacy option ROM execution
 - B4 = USB hotplug
 - AB = BIOS Setup
 - 00 = Boot to bootable devices
- and more ...

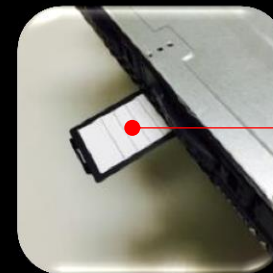
➤ Front Access Design

Front
USB



Front
VGA

➤ Asset Tag

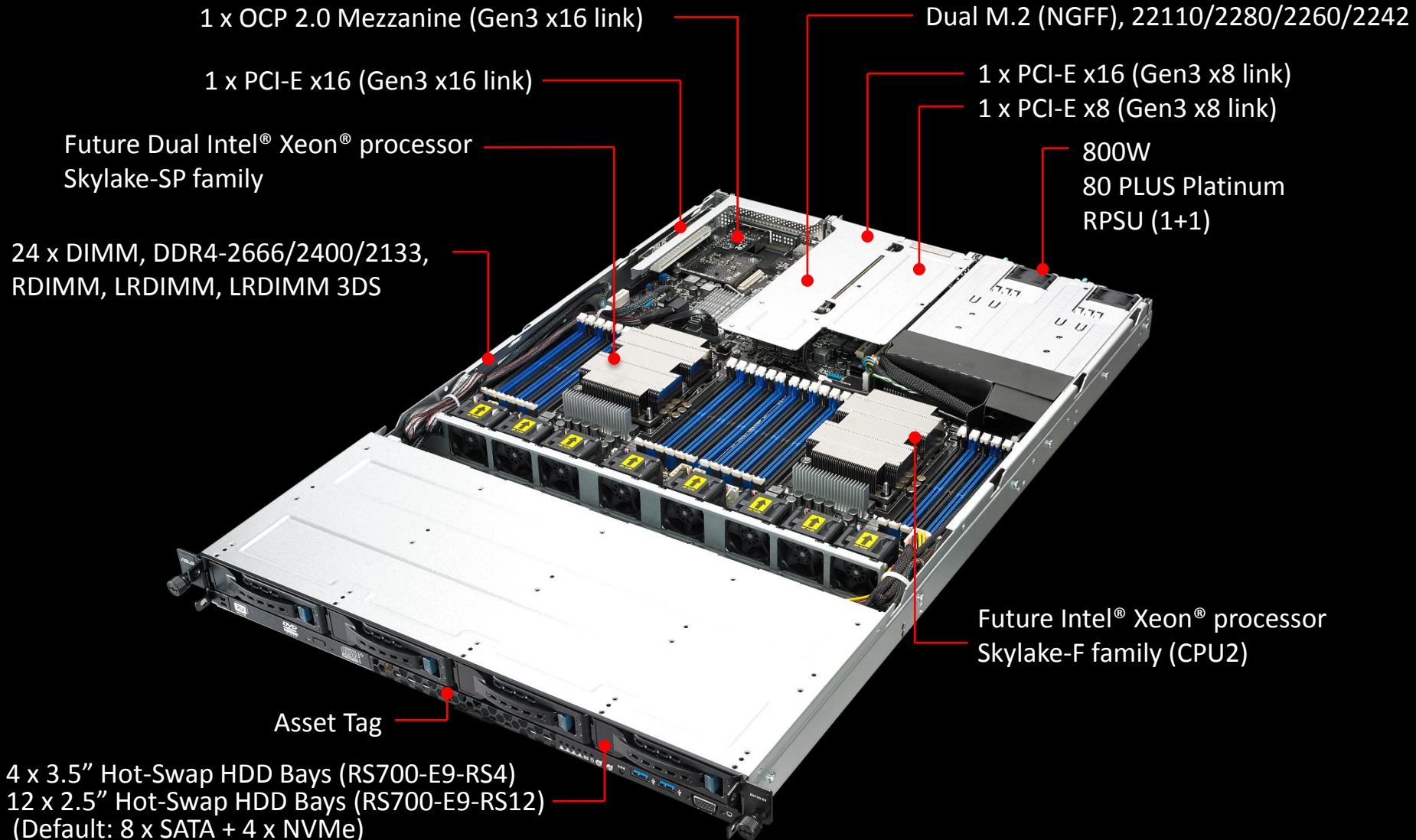


Asset Tag

RS700-E9 (RS4, RS12)



RS700-E9 Series Overview



RS700-E9 Series Overview

■ Front View

RS700-E9-RS4

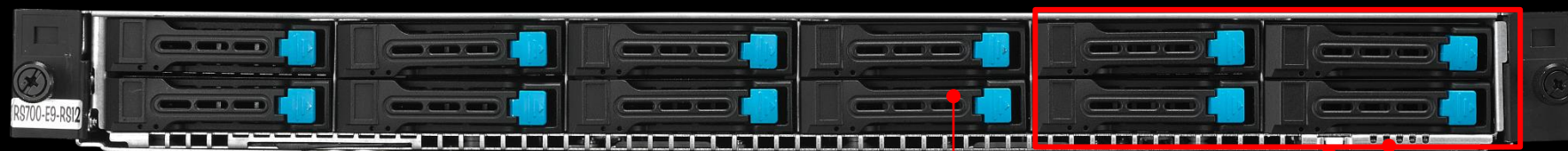


Slim-type Optical Drive Bay (optional)

Front Panel LEDs and Buttons

Front VGA
2 x USB 3.0

RS700-E9-RS12



12 x 2.5" Hot-swap Storage Bays
(Default: 8 x SATA + 4 x NVMe)

Power Button

Front Panel LEDs

■ Rear View



1+1 800W 80 PLUS Platinum CRPS

2 x USB 3.0

VGA Port 80

Mgmt LAN

2 x LAN port

OCP 2.0 Mezzanine

RS700-E9 Series One Page



- Target Market :
 - ✓ HPC ,Cloud Computing
 - ✓ Data Center
 - ✓ Virtualization application
- Rack-optimized Placement
 - ✓ Optimized cooling efficiency, up to 165W CPU with 24 DIMMs
 - ✓ One CPU supports Omni-Path Architecture (OPA)
- 3+1 Expandability
 - ✓ 3 x PCI-E Gen3 slots in 1U system
 - ✓ OCP 2.0 Mezzanine 10G /25G /100G LAN Card supported
- Platinum-level Efficiency
 - ✓ BTC II
 - ✓ Digi+ EPU
 - ✓ Dr. MOS
- Additional Storage for OS
 - ✓ Dual M.2(NGFF)
 - ✓ Internal USB Type A Connector
- Enhance Usability
 - ✓ Front USB (RS700-E9-RS4)
 - ✓ Diagnostic indicators
 - ✓ Tool-less rail kit
- Server Management Solution
 - ✓ Onboard ASMB9-iKVM module for out-of-band management
 - ✓ In-band ASUS Control Center (ASWM Enterprise 2.0) provides efficient . one-on-many management

Feature difference	RS700-E9-RS4	RS700-E9-RS12
HDD Capacity	4 x 3.5"	12 x 2.5"



Processor	Future Dual Intel® Xeon® processor Skylake-SP series Future Intel® Xeon® processor Skylake-F series (CPU2)
Core Logic	Intel® Lewisburg C621
Memory	24 x DDR4-2666/2400/2133, RDIMM, LRDIMM, LRDIMM 3DS
Expansion Slots	Total: 3+1 1 x PCI-E x16 (Gen3 x16 link), FH, HL -> (Will be default occupied by nVME riser for RS12 SKU) 1 x PCI-E x16 (Gen3 x8 link), LP, HL 1 x PCI-E x8 (Gen3 x8 link), LP, HL 1 x OCP 2.0 Mezzanine (Gen3 x16 link)
RAID Support	PIKE II 3008/3108 (Optional)
HDD Bays	4 x 3.5" Hot-Swap HDD Bays (RS700-E9-RS4) 12 x 2.5" Hot-Swap HDD Bays (RS700-E9-RS12) (4x NVMe Supported)
M.2(NGFF) Support	2 x M.2 (Gen3 x4 link) (22110/2280/2260/2242)
Networking	2 x 1GbE LAN (Intel I350 AM2) 1 x Mgmt LAN
Graphic	Aspeed AST2500 /64MB
Remote Mgmt.	ASUS Control Center (ASWM Enterprise 2.0) ASMB9-iKVM for KVM-over-IP (On-Board)
Regulatory	CE, FCC, C-Tick, BSMI
Dimension	686mm x 444mm x 44mm (1U)
PSU	1+1 800W 80 PLUS Platinum CRPS
OS support	Windows® Server 2016 Windows® Server 2012 RedHat® Enterprise Linux SuSE® Linux Enterprise Server CentOS VMware Citrix XenServer
Environmental Spec.	Operation temperature: 10°C ~ 35°C Non operation temperature: -40°C ~ 70°C Non operation humidity: 20% ~ 90% (Non condensing)

RS520-E9 (RS8, RS12)



RS520-E9 Series Overview

Dual M.2 (NGFF), 2280/2260/2242

Future Dual Intel® Xeon® processor
Skylake-SP family

16 x DIMM, DDR4-2666/2400/2133,
RDIMM, LRDIMM, LRDIMM 3DS

2 x PCI-E x16 (Gen3 x16 link)

4 x PCI-E x8 (Gen3 x8 link)

1 x OCP 2.0 Mezzanine (Gen3 x16 link)

2 x 2.5" Hot-Swap SSD Bays
(SATA Support)

1+1 800W 80 PLUS
Platinum CRPS

Asset Tag



RS520-E9-RS8 (4 x NVMe Supported)



RS520-E9-RS12-E (4 x NVMe Supported)

8 x 3.5" Hot-swap HDD Bays (RS520-E9-RS8)
12 x 3.5" Hot-swap HDD Bays (RS520-E9-RS12-E)

RS520-E9 Series One Page

Target market

- ✓ Data center Storage Server
- ✓ Enterprise Application

Optimized Cooling Efficiency

- ✓ Rack-optimized Placement, up to 150W CPU with 16 DIMMs

6+1 Expandability

- ✓ 6 x PCI-E Gen3 slots in 2U system
- ✓ OCP 2.0 Mezzanine 10G /25G /100G LAN Card supported

Platinum-level Efficiency

- ✓ BTC II
- ✓ Digi+ EPU
- ✓ Dr. MOS

Additional Storage for OS

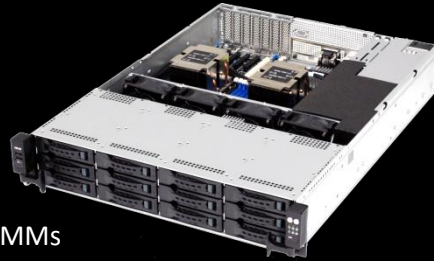
- ✓ 2 x 2.5" Hot-swap SSD Bays
- ✓ Dual M.2 (NGFF)

Enhance Usability

- ✓ Front VGA (RS520-E9-RS8)
- ✓ Visible Port 80 from Outside
- ✓ Tool-less Rail Kit

Server Management Solution

- ✓ Onboard ASMB9-iKVM Module for Out-of-band Management
- ✓ In-band ASUS Control Center (ASWM Enterprise 2.0) Provides Efficient One-on-many Management






Feature Difference	RS520-E9-RS8	RS520-E9-RS12-E
HDD Capacity	8 x 3.5"	12 x 3.5"
Expander	No	Yes

Processor	Future Dual Intel® Xeon® processor Skylake-SP series
Core Logic	Intel® Lewisburg C621
Memory	16 x DDR4-2666/2400/2133, RDIMM, LRDIMM, LRDIMM 3DS
Expansion Slots	Total: 6+1 2 x PCI-E x16 (Gen3 x16 link), LP, HL) HL -> (one slot Will be default occupied by nVME riser for both RS8 and RS12 SKU) 4 x PCI-E x8 (Gen3 x8 link), LP, HL 1 x OCP 2.0 Mezzanine (Gen3 x16 link)
RAID Support	PIKE II 3008/3108 (Optional)
HDD Bays	8 x 3.5" Hot-Swap HDD Bays (4x NVMe Supported) (RS520-E9-RS8) 12 x 3.5" Hot-Swap HDD Bays (4x NVMe Supported) (RS520-E9-RS12-E)
M.2(NGFF) Support	2 x M.2 (Gen3 x4 link) (2280/2260/2242)
Networking	2 x 1GbE LAN (Intel I350 AM2) 1 x Mgmt LAN
Graphic	Aspeed AST2500 /64MB
Remote Mgmt.	ASUS Control Center (ASWM Enterprise 2.0) ASMB9-iKVM for KVM-over-IP (On-Board)
Regulatory	CE, FCC, C-Tick, BSMI
Dimension	615mm x 444mm x 88mm (2U)
PSU	1+1 800W 80 PLUS Platinum CRPS
OS support	Windows® Server 2016 Windows® Server 2012 RedHat® Enterprise Linux SuSE® Linux Enterprise Server CentOS VMware Citrix XenServer
Environmental Spec.	Operation temperature: 10°C ~ 35°C Non operation temperature: -40°C ~ 70°C Non operation humidity: 20% ~ 90% (Non condensing)



RS700-E9 Product Comparison

Photo			
Processor Support	2 x Socket P0 (LGA 3647) Future Intel® Xeon® processor Skylake SP product family (165W) Future Intel® Xeon® processor Skylake-F product family (CPU2)	Dual Socket P (LGA 3647) Intel® Xeon® Scalable Processors, Dual UPI up to 10.4GT/s Support CPU TDP 70-205W with IVR	Dual Socket P (LGA 3647) Intel® Xeon® Scalable Processors, Dual UPI up to 10.4GT/s Support CPU TDP 70-205W with IVR
Core Logic	Intel® C621 PCH	Intel® C621 PCH	Intel® C621 PCH
Memory Support	24 (6-channel per CPU, 12 DIMM per CPU) DDR4 2666/2400/2133 RDIMM/LR-DIMM/LR-DIMM 3DS/AEP DIMM Maximum up to 3072GB	24 DIMM slots Up to 3TB ECC 3DS LRDIMM, 3TB ECC RDIMM, DDR4 up to 2666MHz	24 DIMM slots Up to 3TB ECC 3DS LRDIMM, 3TB ECC RDIMM, DDR4 up to 2666MHz
Storage Support	12 x 2.5" Hot-swap Storage Device Bays (4 x Default NVMe, 4 x Hybrid NVMe/SAS/SATA, 4 x Hybrid SAS/SATA) ASUS PIKE II 3008 8-port SAS HBA card ASUS PIKE II 3108 8-port SAS HW RAID card 12G SAS Support	10 Hot-swap 2.5" Drive Bays; 10 SATA3 (2 hybrid ports - 2 NVMe opt.)	10 x Hot-swap 2.5" drive bays 10 NVMe (4 hybrid ports for optional SAS3 via AOC)
NIC	2 x Intel I350-AM2 Gigabit LAN controller 1 x Management Port	4x RJ45 Gigabit Ethernet ports 1x RJ45 Dedicated IPMI LAN port	2 x Intel X550 RJ45 10GBase-T ports 1 RJ45 Dedicated IPMI LAN port
M.2 Support	2 x M.2 (22110, 2280, 2260, 2242) (Support SATA/PCIe M.2, SATA RAID)	N/A	1 x M.2 NVMe (2242/2260/2280*/22110*) 1 x M.2 SATA (2242/2260/2280*/22110*) via optional SATA cable * Not supported if installing both NVMe & SATA M.2
Expansion Slot	1 x PCI-E x16 (Gen3 x16 link), FH, HL (Default for NVME4-OCuLink Card) 1 x PCI-E x16 (Gen3 x8 link), LP, HL 1 x PCI-E x8 (Gen3 x8 link), LP, HL 1 x OCP 2.0 Mezzanine (Gen3 x16 link)	2 PCI-E 3.0 x16 (Full-height, 10.5" L) 2 PCI-E 3.0 x8 (1 LP, 1 internal LP)	2 x PCI-E 3.0 x16 slots (Full-height, 10.5"L)
Power Supply	1+1 Redundant 800W 80 PLUS Platinum Power Supply	750W Redundant Power Supplies Platinum Level (94%+)	1000W Redundant Power Supplies Titanium Level (96%)
Dimension	686mm x 444mm x 44mm(1U)	707mm x 437mm x 43mm(1U)	707mm x 437mm x 43mm(1U)
Price			
Brand	ASUS	SMC	SMC
Winning point	support Dual m.2 Default 4 NVME HDD supported OCP 2.0 Mezzanine 10G /25G /100G LAN Card supported Using Optional Raid card ,OCP lan card instead of fixed sku. PCI-E Raid across 4 * U.2 nVME (Optional VROC) Thermal Radar and multiple fan curve for different Fan zones	Up to 10 SATA HDD 4x RJ45 Gigabit Ethernet ports More Expansion Slots, up to 4	Up to 10 MVME HDD 2x RJ45 10G Ethernet ports 1000W Titanium Redundant Power Supplies

RS520-E9 Product Comparison

	ASUS	SMC	SMC
Model Name	RS520-E9	6029P-TR	6029U-TR4
Processor Support	2 x Socket P0 (LGA 3647) Intel® Xeon® Scalable Processors Family (150W)	Dual Socket P (LGA 3647) Intel® Xeon® Scalable Processors, Dual UPI up to 10.4GT/s Support CPU TDP 70-205W with IVR	Dual Socket P (LGA 3647) Intel® Xeon® Scalable Processors, Dual UPI up to 10.4GT/s Support CPU TDP 70-205W with IVR
Core Logic	Intel® C621 PCH	Intel® C621 PCH	Intel® C621 PCH
Memory Support	16 (6-channel per CPU, 8 DIMM per CPU) DDR4 2666/2400/2133 RDIMM/LR-DIMM/LR-DIMM 3DS	Up to 2TB ECC 3DS LRDIMM, up to DDR4-2666MHz; 16 DIMM slots Supports Intel Optane Memory NVDIMM	24 DIMM slots Up to 3TB ECC 3DS LRDIMM, 3TB ECC RDIMM, DDR4 up to 2666MHz
Storage Support	8 or 12 x 2.5" or 3.5" Hot-swap Storage Device Bays (4 x NVMe Supported) ASUS PIKE II 3008 8-port SAS HBA card ASUS PIKE II 3108 8-port SAS HW RAID card 12G SAS Support 2 x 2.5" Hot-Swap Storage Device Bays (Rear) (SATA SSD Only)	8 Hot-swap 3.5" SATA3 drive bays; RAID 0, 1, 5, 10 Optional DVD-ROM drive, optional support: 2 fixed 2.5" NVMe/SSD/HDD,	12 Hot-swap 3.5" drive bays 12 SATA3 ports by default; Optional 8 SAS3 + 4 NVMe/SAS3
NIC	1 x Dual Port Intel I350-AM2 Gigabit LAN controller 1 x Management Port	2 x Intel® X722 Gigabit Ethernet Controller Virtual Machine Device Queues reduce I/O overhead Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 output	4 GbE ports via AOC-2UR68-I4G-P (Intel i350AM4)
M.2 Support	2 x M.2 (2280, 2260, 2242) (Support SATA/PCIe M.2,SATA/PCIe RAID)	1 M.2 support	1 M.2 support
Expansion Slot	2 x PCI-E x16 (Gen3 x16 link), LP, HL 4 x PCI-E x8 (Gen3 x8 link), LP, HL 1 x OCP 2.0 Mezzanine (Gen3 x16 link)	4 PCI-E 3.0 x16 (Low-profile) 2 PCI-E 3.0 x8 (Low-profile)	2 PCI-E 3.0 x16 (FH, 10.5" L) 4 PCI-E 3.0 x8 (FH, 10.5" L) 1 PCI-E 3.0 x8 (LP)
Power Supply	1+1 Redundant 800W 80 PLUS Platinum Power Supply	1+1 800W/1000W Redundant Power Supplies Titanium Level (96% efficiency)	1 PCI-E 3.0 x8 (internal LP)
Dimension	615mm x 430mm x 88mm	76 x 40.4 x 336 mm	1+1 800W/1000W Redundant Power Supplies Titanium Level (96% efficiency)
Price			76 x 40.4 x 336 mm
Brand	ASUS (CPU Side by Side placement)	SMC	SMC
Winning point	support Dual m.2 1 x OCP 2.0 Mezzanine (Gen3 x16 link) Using Optional 10 G add-on card instead of fixed sku. Default hot-swap 4 * nVME Support Thermal Radar and multiple fan curve for different Fan zones PCI-E Raid across 4 * U.2 nVME and 2 * M.2 (Optional VROC)	Titanium Level (96% efficiency) Support CPU TDP 70-205W with IVR Many I/O sku included 25G SFP+ Supports Intel Optane Memory NVDIMM 2 x Intel® X722 Gigabit Ethernet Controller Virtual Machine Device Queues reduce I/O overhead Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 output	Titanium Level (96% efficiency) 24 DIMM slots Support CPU TDP 70-205W with IVR Many I/O sku included 25G SFP+ additional 1x PCI-E 3.0 x8 (internal LP)
	Cost Effective 16 DIMMs, Stream line CPU placement 2U Server with default nVME Support		4 GbE ports via AOC-2UR68-I4G-P (Intel i350AM4)

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