

Rugged Distributed Processing (RDP)

20" Deep, 1U Disaggregated Network-Attached Parallel Processing

Low-latency access and direct availability of parallel processing

- Tensor-core powered processing with DPU acceleration to 100 Gb Ethernet
- Independently scaled GPU compute from storage and x86-based processing
- GPU acceleration with low-latency performance
- Optimized thermal, power and system-size design through disaggregation



Mercury's Rugged Distributed Processing (RDP) solution is a data center-class disaggregated network-attached processing system that delivers GPU parallel computing resources over high-speed Ethernet connections to multiple devices on a platform without requiring a host system. This high-performance computing (HPC) system enables compute-intensive, low-latency workloads, including sensor ingest, AI/ML and data analytics, at the edge.

Highlights

- Deploys ruggedized, distributed GPGPU processing at the edge with the world's highest-performing AI supercomputing GPU (NVIDIA A100 80 GB)
- Couples high-performance NVIDIA Ampere GPU and BlueField-2 DPU modules over Gen 4 PCIe fabric enabling the sharing of parallel computing resources over dual 100 GbE network connections
- Reduces SWaP, cost and complexity by eliminating x86 management host traditionally required for GPU management, networking and security, freeing up CPU resources for other workloads
- Scale aggregate GPGPU resources with multiple 1U short-depth chassis RDP units

Partnering with



TECHNICAL SPECIFICATIONS

GPU Capabilities

80 GB GPU memory with 6,912 cores (NVIDIA A100 80 GB)

312 TFLOPS of deep learning performance

Up to 249x higher AI inference performance over CPUs

DPU Capabilities

2x 100 Gbps QSFP56 (NVIDIA BlueField-2 DPU)

8 ARMv8 A72 cores

8 GB eMMC memory (BIOS and OS) and 16 GB DDR4 SODIMM

Operating System

Linux supported via on-system memory

Mechanical

Height: 1U or 1.75" (44.45 mm)

Width: 17" (431.8 mm)

Depth: 20" (508 mm)

Weight (Typical): 15 lb

19" rackmountable

External Interfaces

1x power input

1x power button

2x 1/10/25/40/50/100 Gbps QSFP network ports

1x 1 Gbps 1000Base-T RJ45 OOB network port

1x mini-USB port

Scalability

Scale performance by adding RDP nodes independent of x86-based nodes

Power Supply

1000 W 90-264 VAC, 47-63 Hz PSU

Environmental

Rugged aluminum and stainless steel construction and optimized airflow

Tested for 0°C to 35°C operation
0°C to +50°C operation may cause throttling*

*Support for peak GPU performance not validated. Formal environmental qualification testing not performed.

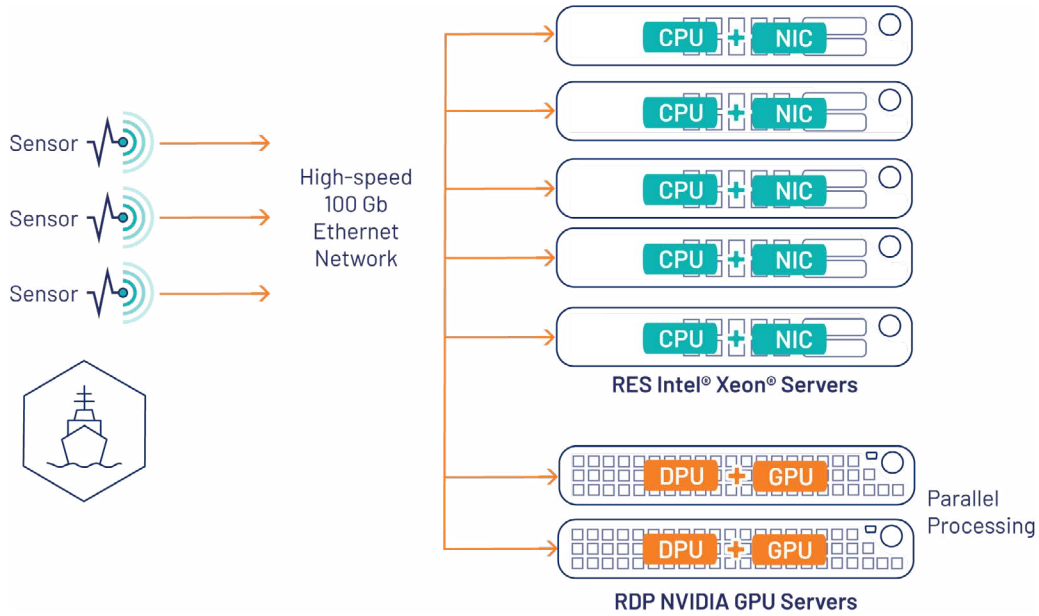


Front View

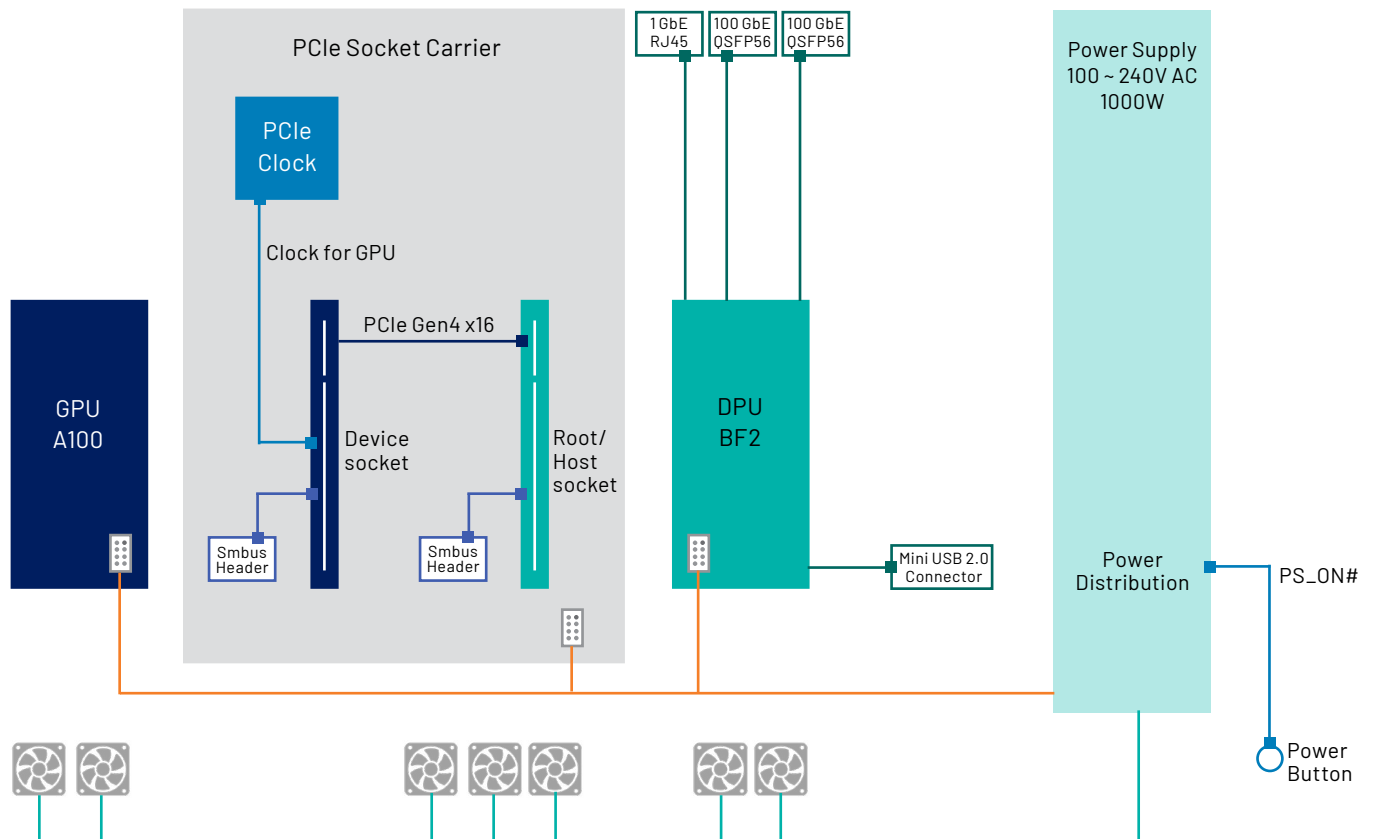


Rear View

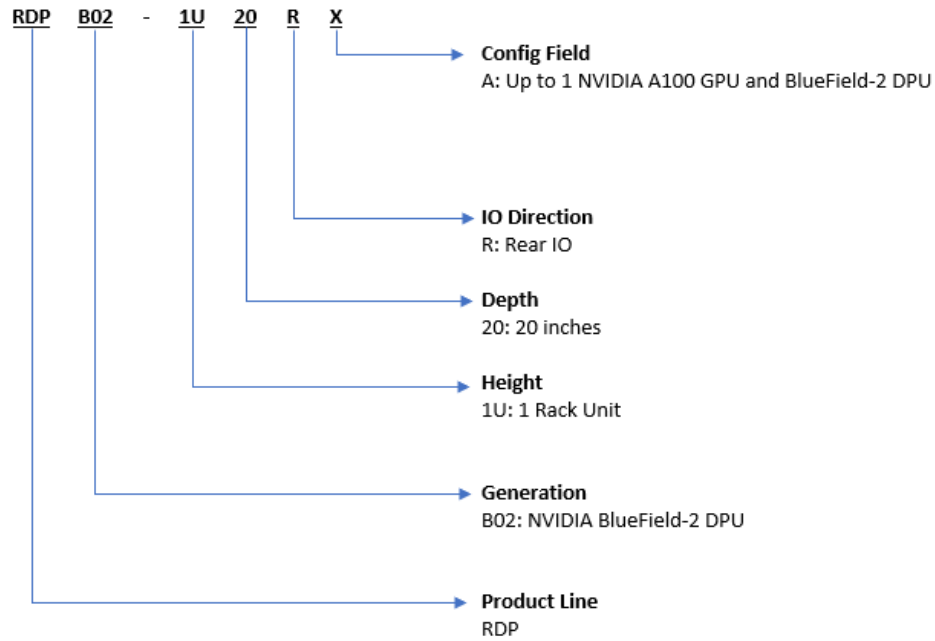
HIGH-PERFORMANCE DISTRIBUTED GPU EDGE PROCESSING



RDPB02-1U20RA FUNCTIONAL BLOCK DIAGRAM



CONFIGURATION MODEL CHART



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