QCT Decathlete v3 Specification

Decathlete v3.0
Mother Board overview

USB0/USB1
Micro SD Slot
453mm (17.8")
OCP Mezzanine Slot A
OCP Mezzanine Slot B
OCP Mezzanine Slot C
(for PHY board)
PCIe x16 Slot 1A
PCIe x16 SAS Mezz Slot
PSU 1
PCH
CPU0_Memory Slots

COM Port
VGA
BMC Dedicated NIC
BMC AST2500
PCIe x24 Slot 2
PCIe x24 Slot 3
PSU 2
SATADOM 0/ SATADOM 1
CPU1_Memory Slots

Intel® Xeon P Processor
Intel® Xeon P Processor

CPU 0
CPU 1
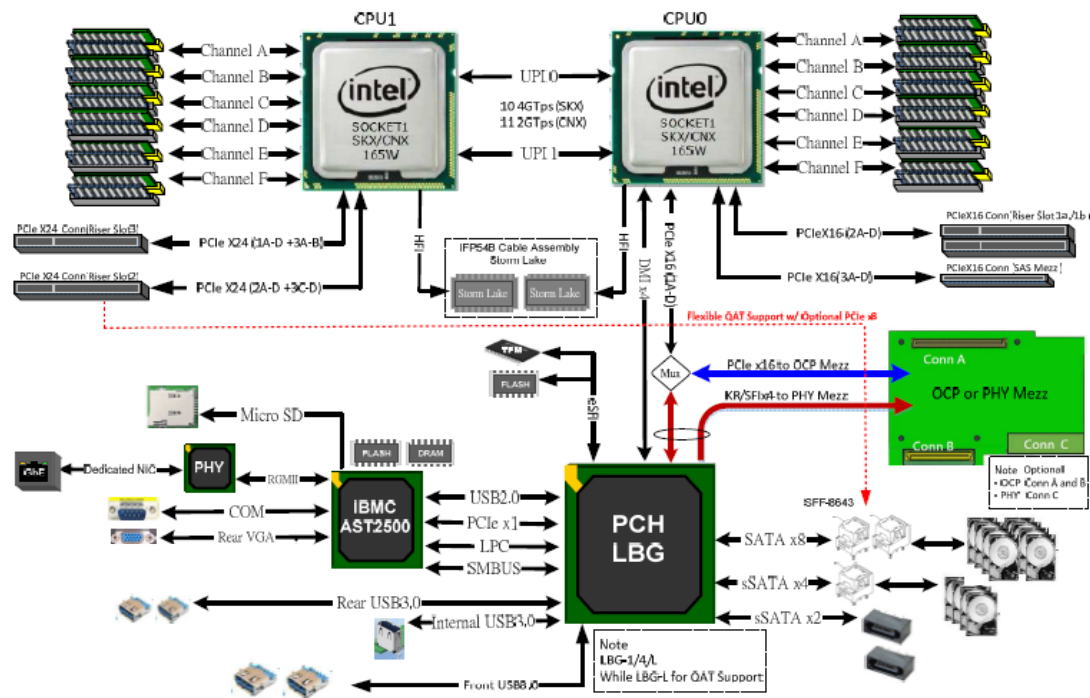424.2mm (16.7 ")

Block Diagram

Figure 2-1 Purley Enterprise Rack S5B Configuration

QCT Decathlete v3.0 - OCP Tenets

Efficiency – The motherboard component and connector placements are fine-tuned for thermal efficiency, and layout is designed for optimized power efficiency. As seen on spec.org, has the lower power consumption at idle of all systems posted. At full configuration, system fan loading is at 50%, proving this system to be as efficient as possible, to help users save on operation expenditure.

Scalability – Flexible motherboard spec that allows for use in all types of HW building blocks.

Openness – Building upon previous contributions Decathlete v1 and v2, while optimizing and enhancing features. Compliant to DTMF Redfish API for an open source standard based management
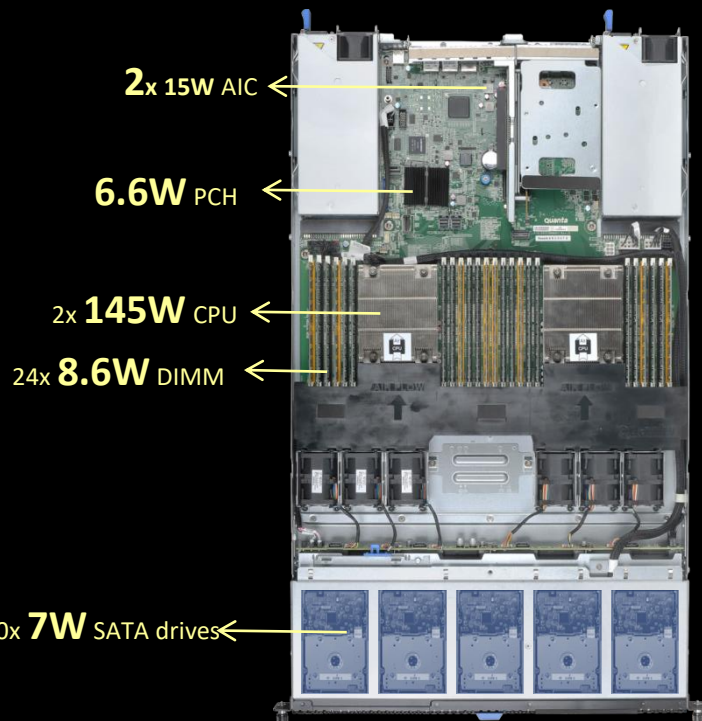
Impact – This contribution provides the community a current CPU platform version of previous gen Decathlete contributions. Enabling continuity for legacy rack users and colocation sites.
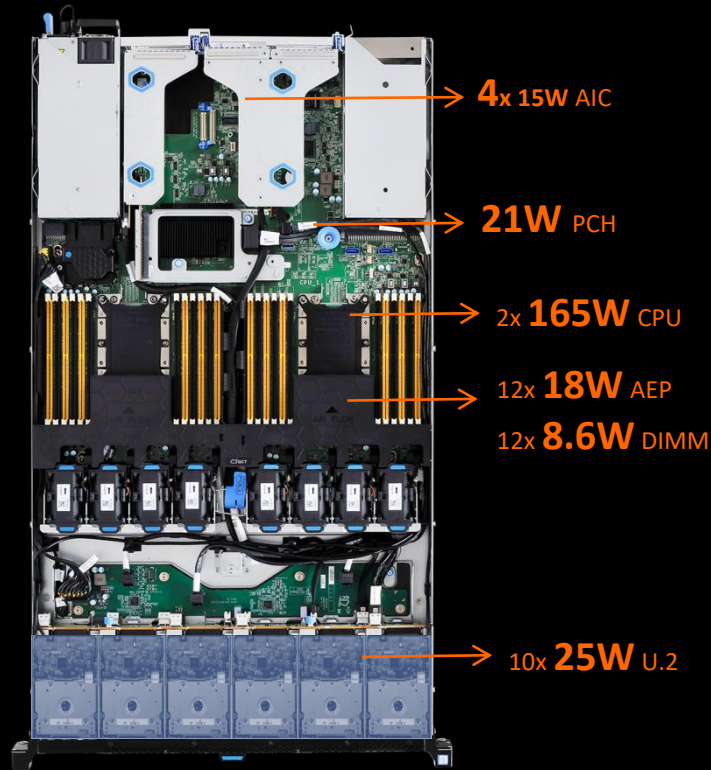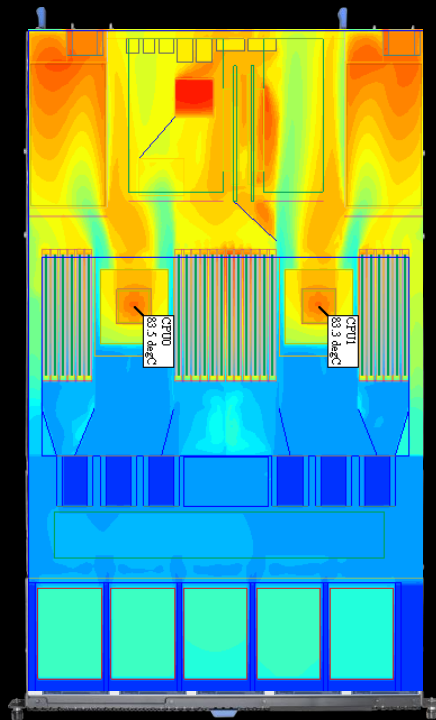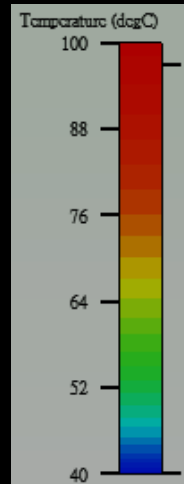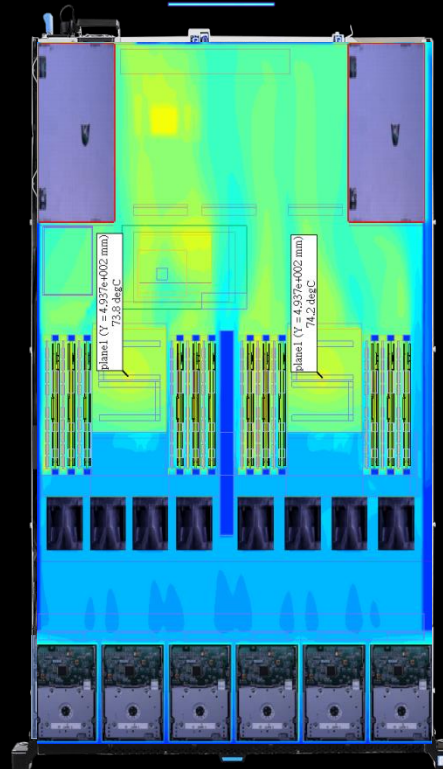
QuantaGrid
D52B-1U

Previous Gen

CPU0
83.5 degC

CPU1
83.3 degC

NOW

plane1 (Y = 4.937e+002 mm)
73.8 degC

plane1 (Y = 4.937e+002 mm)
74.2 degC

Temperature (degC)

100

88

76

64

52

40

Fine tuned for **the lowest power draw during system idle**

Vendor	System	Processor					Total Memory (GB)	Submeasurements		
		CPU Description	MHz	Chips	Cores	Total Threads		ssj_ops @ 100%	avg. watts @ 100%	avg. watts @ active idle
Vendor A		Intel Xeon Platinum 8180	2500	2	56	112	96	5,779,630	451	48.7
Vendor B		Intel Xeon Platinum 8180	2500	4	112	224	192	11,281,436	936	88.9
Vendor C		Intel Xeon Platinum 8176	2100	2	56	112	192	5,941,377	461	49.6
Vendor D		Intel Xeon Platinum 8180	2500	2	56	112	192	5,604,531	423	48.9
Vendor E		Intel Xeon Platinum 8176	2100	2	56	112	192	5,025,064	357	57.7
QCT	QuantaGrid D52B-2U	Intel Xeon Platinum 8180	2500	2	56	112	192	5,651,522	426	39.5

D52B-1U
Defying Physical Limitations

Top shelf Intel®Xeon® Purley processor*

Up to **5**x PCIe expansion slots

Up to **3**TB memory capacity**

Up to **5**x drive bay configurations

* With limited conditions
** With specific CPU
*** AEP with Cascade Lakes CPU

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D52B-1U
Chassis Overview

43.2mm (1.7")

780mm (30.7")

440mm (17.3")

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D52B-1U
Chassis Overview

(2) USB 3.0 ports

Hot swap drive bays

(8) Dual-rotor FAN

(2) Intel SKL-SP processors

(24) ECC RDIMM Slots
Support up to 12 x 18W AEP Memory

(1) Internal SAS Mezz PCIe Slot

(2) Redundant PSU*

(3) PCIe Expansion Slots

(1) OCP 2.0 Mezz Slot

* Watt of PSU need to refer to SKU selection

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D52B-1U
Flexible NIC Options

- Without Phy Card, PCIe lanes will auto-switch to support 3rd party OCP card
- OCP Mezz card and PHY card cannot use simultaneously.
- There's no additional on-board LAN.
  Please must select either a Phy Card or 3rd party OCP card on AVL
- Default L6 SKU does not include OCP PHY card or OCP Mezz card
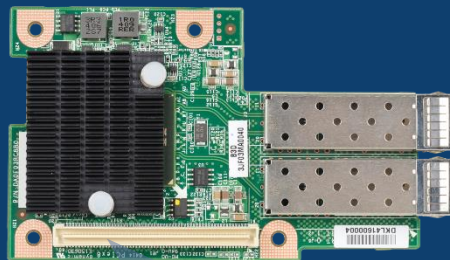- OCP Mezz card please refer to CCL

OCP PHY Card Options

Port Count	Speed	Connector	Part Number
Dual port	1GbE	RJ45, Copper	ON 1G I357-T2
Quad port	1GbE	RJ45, Copper	ON 1G I357-T4
Dual port	1GbE/ 10GbE	RJ45, Copper	ON 10G X557-T2
Quad port	1GbE/ 10GbE	RJ45, Copper	ON 10G X557-T4
Dual port	1GbE/ 10GbE	SFP+, Copper DA or Fiber	ON 10G X527-DA2
Quad port	1GbE/ 10GbE	SFP+, Copper DA or Fiber	ON 10G X527-DA4

OCP Mezz Card Options

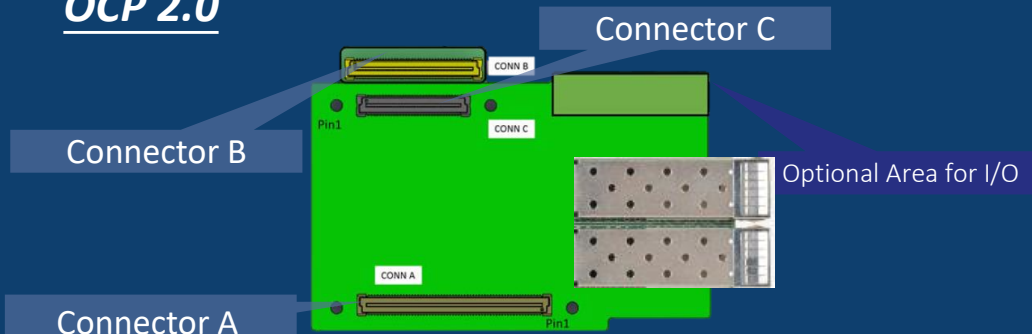| Port Count	Speed	Connector	Bus	From Factor	Part Number
Single/ Dual port	25GbE	SFP 28	PCIe x8 G2	OCP 2.0 Type1 Mezz	ON 25G QL45204
Single/ Dual port	25GbE	SFP 28	PCIe x8 G3	OCP 2.0 Type1 Mezz	OON 25GbE CX4 LX EN
Single/ Dual port	25GbE	SFP 28	PCIe x8 G3	OCP 2.0 Type1 Mezz	BCM957302M3020C BCM957304M3040C
Dual port	40GbE	QSFP	PCIe x8 G3	OCP 2.0 Type1 Mezz	XL710-QDA2OCP
Single port	40GbE	QSFP	PCIe x8 G3	OCP 2.0 Type1 Mezz	ON 40GbE CX3PRO

What's the difference between OCP1.0 and OCP2.0?

OCP 1.0

Connector A

Description	Connector	OCP Slot A
Single/Dual ports 1G	RJ45	V
Single/Dual ports 10G	SFP+/RJ45	V
Single port 40G	QSFP+	V

OCP 2.0

Connector C

Connector B

Optional Area for I/O

Connector A

Description	Connector	OCP Slot A	OCP Slot B	OCP Slot C
Single/Dual ports 10G/25G	SFP+/SFP28	V	X	X
Single/Dual ports 40G	QSFP+	V	X	X
Single/Dual ports 50G/100G	QSFP28	V	V	X
Quad ports 25G	SFP+	V	V	X
PHY board	SFP+/RJ45	X	X	V

Enhanced Serviceability for **D52B-1U**

Blue Icon

Simple, Speedy, Productive

PCIe Riser Module 1

PCIe Riser Module 2

Internal SAS Mezz Module

Super-cap Module

Fan Module

Modularized PCIe Riser and Fan optimize the part installation or replacement.

HDD BP

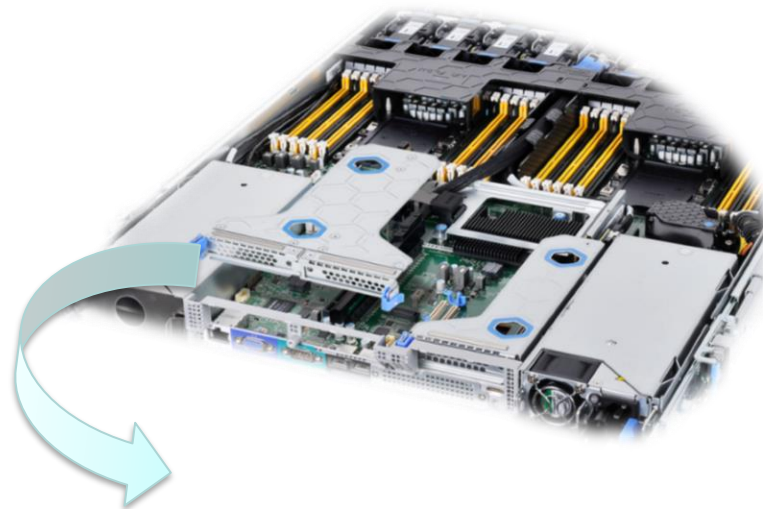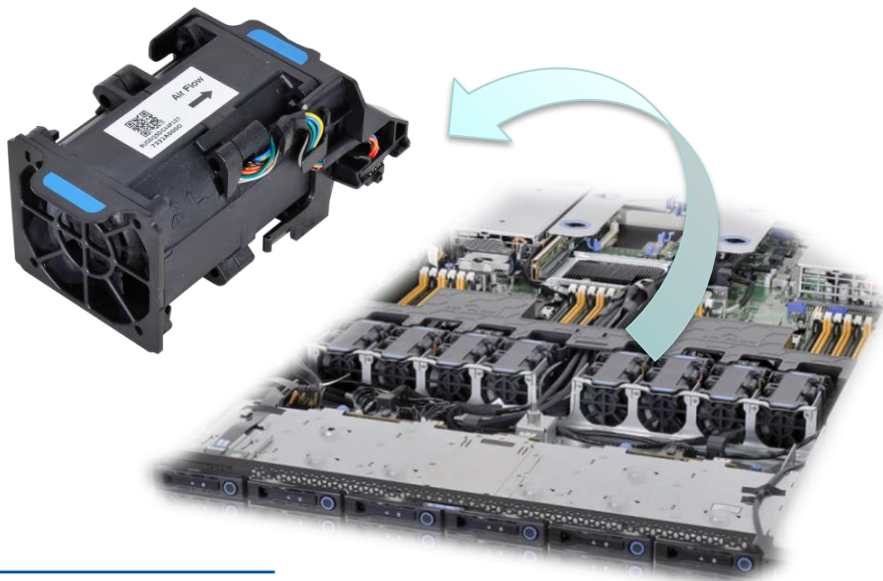**Thumb-screw** design makes service more efficient and faster to change and fix.

Enhanced Serviceability for **D52B-1U**

Easy-Service Fan Modules

Easy-Service PCIe Riser Modules

Enhanced Serviceability for **D52B-1U**
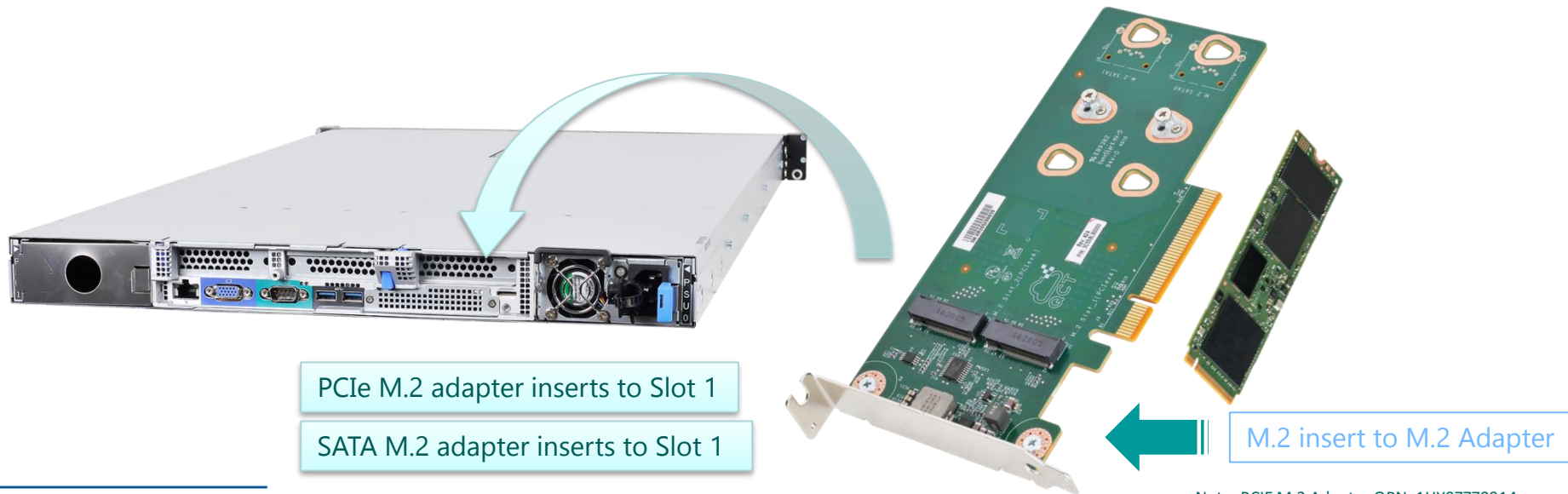
Cable Arm

Screw-less for easy service and additional lock for security

Extra Storage – M.2 for **D52B-1U**

M.2

Leading edge PCIe M.2 enhance performance for OS

PCIe M.2 adapter inserts to Slot 1

SATA M.2 adapter inserts to Slot 1

M.2 insert to M.2 Adapter

Note: PCIE M.2 Adapter QPN: 1HY9ZZZ0914

Thank You

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