

**OPEN**  
Compute Project

## **QCT Rackgo X Tioga Pass**

### **Brief Specification**

<Revision:1.0>

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## Revision History

Revision	Date	Change Summary
1.0	2018/04/23	Product specification revision 1.0 release

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## 1. Overview

The brief product specification illustrates "QCT Rackgo X Tioga Pass" is based on Intel® Xeon® Scalable processor family (aka Skylake-SP) CPU architecture. The motherboard supports up to 24 DIMMs with double sided board SKU and up to 12 DIMMs with single sided sled design in ORv2.

Note: Double sized with 24 DIMMs SKU is not orderable as plan

## 2. High Level System Features

Board Name	Server Baseboard
Form Factor	6.5" x 20", 14 layers, 2.33mm, up to 24 DIMM slots
CPU	Dual Intel Skylake-SP, Socket P
Max Processor Wattage	Up to 165W, Optimized power delivery for 145W, VR 13
UPI Speed	Up to 10.4GT/s for Skylake-SP
Chipset	Lewisburg PCH
Memory	For double side SKU, 2 DDR4 slots per Channel (total 24DIMM) For Single side SKU, 1 DDR4 slot per Channel (total 12DIMM) Support RDIMM, LRDIMM DDP, LRDIMM 3DS TSV-4H, AEP (Apache Pass DIMM), up to 2666 Up to maximum 3072 GB with 128GB DRAM DIMM
Slots	-PCIE Riser slot, up to PCIE GEN3 x32 -OCP MEZZ slot, up to PCIE GEN3 x16 (Conn A x8, Conn B x8) - KR MEZZ slot, support KR x4 (Conn C - Optional)
Mezzanine	OCP Ethernet 10G, 25G or 100G Mezzanine Module
HDDs	1 ports SATAIII (6Gbps) on 13 pins SATA connectors. 13 pin SATA conn is installed at bottom layer for double side and at TOP layer for Single side
USB	One USB3.0 type-A port on Front (Support USB 2.0 interface only) One USB type-C ports on Front panel to support Intel DCI
BMC/ Video	ASPEED AST2500
ACPI	ACPI compliance, S0, S5 support (* No S1, S3 support.)
Board to Mid plane	Two 3x8 AirMax connector to support PCIE Gen3 x16 (Optional)
Chassis(ORV2 Compliance)	Double side sled and Single side sled design(2OU) for ORV2

Table 1 High Level System Features

### 3. QCT Rackgo X Tioga Pass Block Diagram

The Figure 1 illustrates the functional block diagram of the QCT Rackgo X Tioga Pass. The dashed lines are for reserved connection, dual layout, and high-speed mid-plane option.

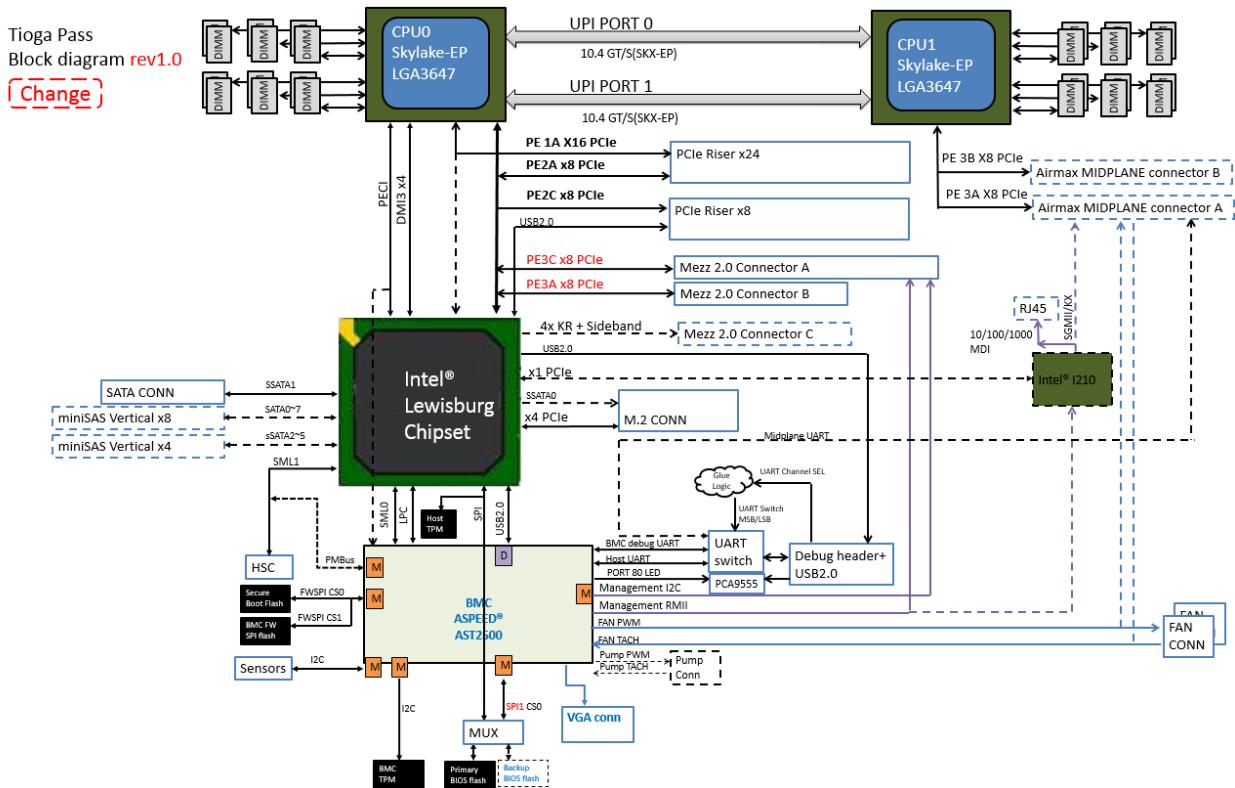


Figure 1 QCT Rackgo X Tioga Pass Block Diagram

#### 4. Mechanical Dimension

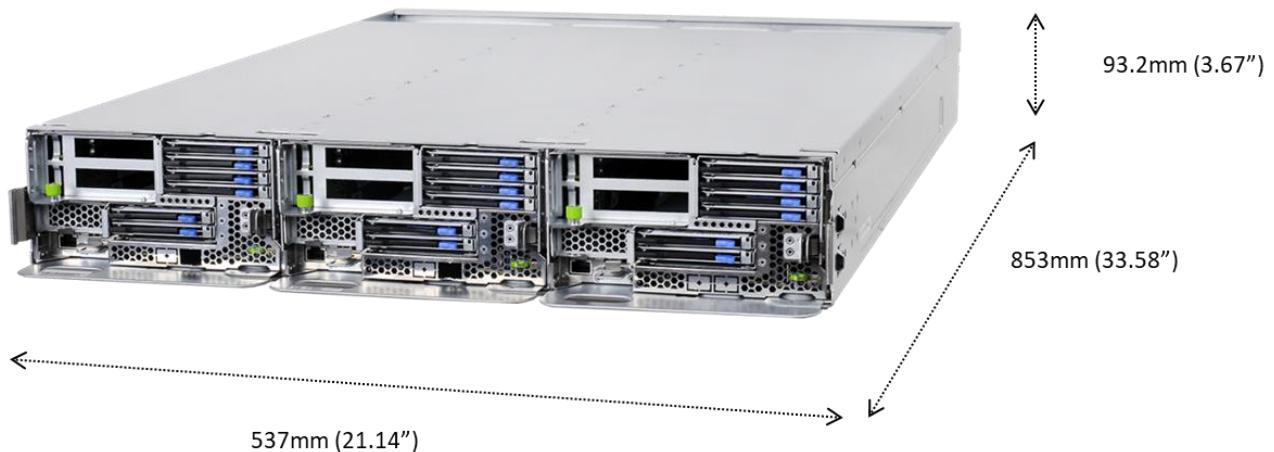


Figure 1 Mechanical System View



Figure 2 2x FH slots with 1x3.5" HDD SKU(Single Side)



Figure 3 2x HH Slots with 6x2.5" HDD SKU(Single Side)

## 5. Component Placement

The key part placement of QCT Rackgo X Tioga Pass is shown as below:

Top side:

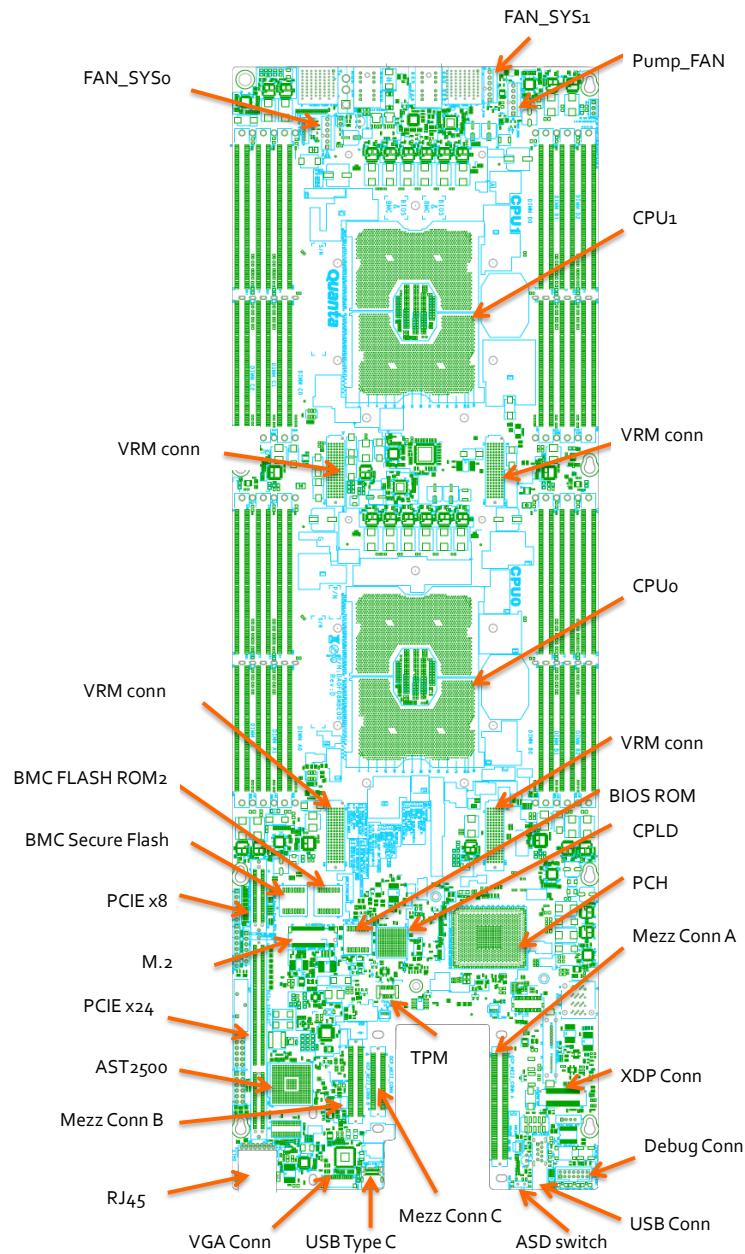


Figure 4 key part placement

## 6. OCP Tenets/Principles

- **Efficiency**
  - New design to trim the dimension requirement of compute node to achieve the optimization of space use in the chassis
  - Selectable riser to support 2x FH slots riser with 1x 3.5" HDD or 2x HH slots riser with 6x 2.5" HDD according to the IO bandwidth requirement
  - Utilize efficiently the layout of rack, each chassis is with 2OU height, totally 16x 2OU system in one rack without remaining space
- **Scalability**

- Comply with current Cubby chassis to extend the various platform use case
- **Openness**
  - Comply with ORv2 standard
- **Impact**
  - New design architecture of placing DIMM on bottom side of baseboard to utilize efficiently the chassis space

## 7. Reference

- Facebook 2S Server Tioga Pass Rev 1.0