QCT Rackgo X
Yosemite V2

2018/10/11
Agenda

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Overview

• Introduction
  - “Rackgo X Yosemite V2” is new generation platform that enables with Intel Xeon Processor Skylake-D Product Family. Each Yosemite V2 sled hosts up to “4x OCP compliant 1P server cards” or “2x 1P server cards & 2x device cards”. And each vCubby chassis can hold up to 4x Yosemite V2 sleds

• Contributions
  - Design package
  - Product submission to Marketplace.
    - Product Recognition: Accepted level

• Specification Reference
  - Facebook Multi-Node Server Platform: Yosemite V2 Design Specification v1.0 spec
Why Needs This Product

• More and more computing capability requirement than before for various application, for example, AI (artificial intelligence)

• High density Yosemite V2 with next generation CPU to provide higher computing performance & memory capacity
# High Level Features - Yosemite V2 Sled

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>• Intel Skylake-D, Xeon processor, up to 18 cores, TDP up to 110W. Twin Lakes only support 86W</td>
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| **Memory**             | • Up to 4 DDR4 channels (2DIMMs / channel)  
                          • Max Memory capacity of Twin Lakes: 128GB. 16GB*8 or 32GB*4                                                                                                                                          |
| **External I/O Connections** | • 32 x PCIe Gen3 Lanes (CPU)  
                          • (6) X4 to gold finger  
                          • (2) X4 to high-speed storage drive M.2 connector on Twin Lakes.  
                          • 20 x Gen3 over HSIO (PCH)  
                          • (1) X4 PCIe for Mellanox CX-4 LX mezzanine  
                          • (1) USB 3.0 for DCI  
                          • (1) PCIe X1 for VGA  
                          • (1) USB 2.0 to baseboard  
                          • (1) Serial connection(Tx/Rx only)  
                          • I2C Management connection  
                          • Power On/Off, Reset control                                                                                                                     |
| **Storage**            | • (3) M.2 connectors. One for boot drive(PCIe or SATA). Two for high-speed storage drive(PCIe).                                                                                                            |
Mechanical View - System Level

- Twin Lakes Server
- Glacier Point Flash Card (houses up to 6 M.2 SSDs)
- Crane Flat Card (with PCIe add-in cards)
- Adapter card Type1 (for 50G NIC)
- Adapter card Type2 (for 100G NIC)
- VCubby
- 1x2 Medusa Cable
- Power Bar Board
- Electrical Brush
- Sled Chassis
- Base Plane Board
Mechanical View - Sled Level

All Computes

Different Configurations

2xComputes w/ 2x M.2 carrier cards
Mechanical View-Server Card Level

1P Server Card - Twin Lakes

CPU
Block Diagram of Sled-Yosemite V2 Sled
Block Diagram of Server Card - Twin Lakes
Enhancement From V1 to V2

• 8 DIMM/server card compare to V1 (4xDIMM)

• Install server card **vertically** with new V-cubby compare to V1 Cubby chassis (**horizontally**)

Compatible Components List & User Guide

• “QCT Rackgo X OCP Debug Card with LCD” could be operated with Yosemite V2 sled
Design Files Contribution-
01_Electricals

➢ 01_Full System Board Layout

- 01_Full System Board Layout
  - 01_MB_TL
  - 02_Baseboard
  - 03_Adapter board type 1
  - 04_Adapter board type 2
  - 05_Adapter board type 3
  - 06_Power bar with e-fuse
  - 07_Glacier Point
  - 08_Crane Flat

➢ 02_Full System Schematic CAD

- 02_Full System Schematic CAD
  - 01_MB_TL
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Design Files Contribution-
01_Electricals

03_Full System Component BOM

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  - 08_Crane Flat

04_Manufacturing Files

- 04_Manufacturing Files
  - 01_PCB manufacturing files
  - 02_Board component placement map (.pdf)
  - 03_Stack Up
Design Files Contribution-02_Mechanicals

 ➢ Mechanical files

- 02_Mechanicals
  - vcubby-with-yosv2-assy-20180620.zip
# Design Files Contribution

## 03_Software

<table>
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<td>03_Softwares</td>
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<td>05_BIC</td>
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OCP Tenets/Principles

➢ **Efficiency**
  ➢ Modularized design for user to easily allocate the compute/storage/accelerator ratio according to different workload

➢ **Scalability**
  ➢ Define a new 1S server card form factor for different modularized compute, storage or accelerator application

➢ **Openness**
  ➢ Comply with ORv2 standard

➢ **Impact**
  ➢ Provide a high efficiency & modularized design to extend the different possible applications
Thanks!