QCT Rackgo X
OCP AVA-4 M.2 Carrier Card

2018/10/15

Agenda

- Overview
- High Level Features
- Why Needs This Product
- Mechanical View and Dimension
- Key Part Placement
- Design Enhancement
- Design Files Contribution
- OCP Tenets/Principles
- Summary

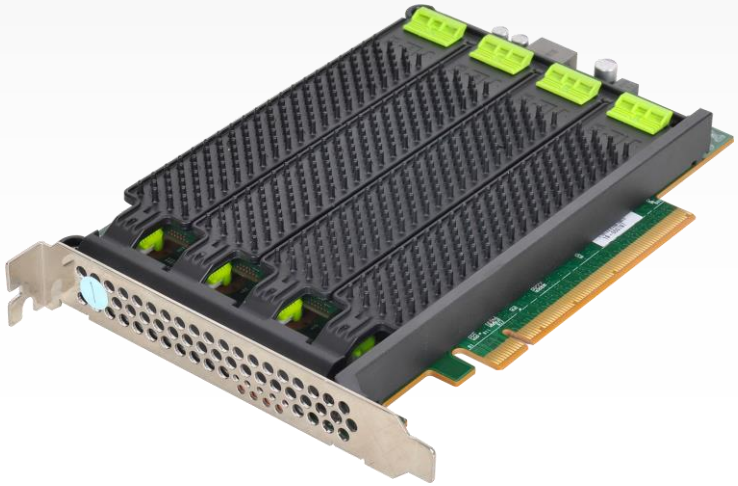
Overview

- Introduction
  - ‘’QCT Rackgo X OCP AVA-4 M.2 Carrier Card’’ is storage extension card with Full Height Half length(FHHL) form factor. That supports up to 4x NVMe M.2 form factor SSD. M.2 supported type could be either 110mm (Type 22110) or 80mm (Type 2280) dual sided M.2 modules.

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

- Specification Reference
  - Facebook M.2 carrier card v1.0 spec

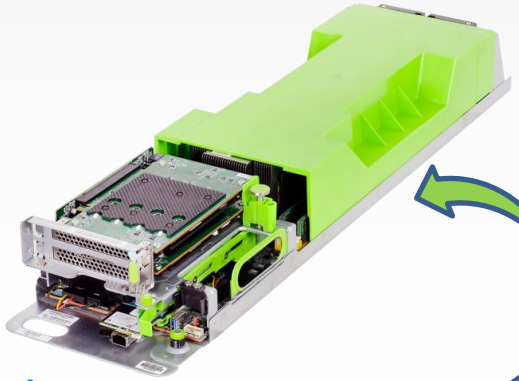
High Level Features



Product Description	
Product Description	QCT Rackgo X OCP AVA-4 M.2 Carrier Card
Form Factor	
Form Factor	Full Height Half Length (FHHL)
Interface	
Interface	PCIe 3.0 x16 for driving 4x NVMe M.2 SSD
SSD Support Type	
SSD Support Type	Up to 4x 110mm (Type 22110) or 80mm (Type 22080) dual sided M.2 SSD
Environmental Requirements	
Environmental Requirements	• Gaseous contamination: Severity Level G1 per ANSI/ISA 71.04-1985 • Ambient operating temperature range: -5°C to +45°C • Storage temperature range: -40°C to +70°C (long-term storage) • Transportation temperature range: -55°C to +85°C (short-term storage) • Operating and storage relative humidity: 10% to 90% (non-condensing) • Operating altitude with no de-rating to 2,000m (6,600 feet)

Why Needs This Product

QCT Rackgo X Tioga Pass



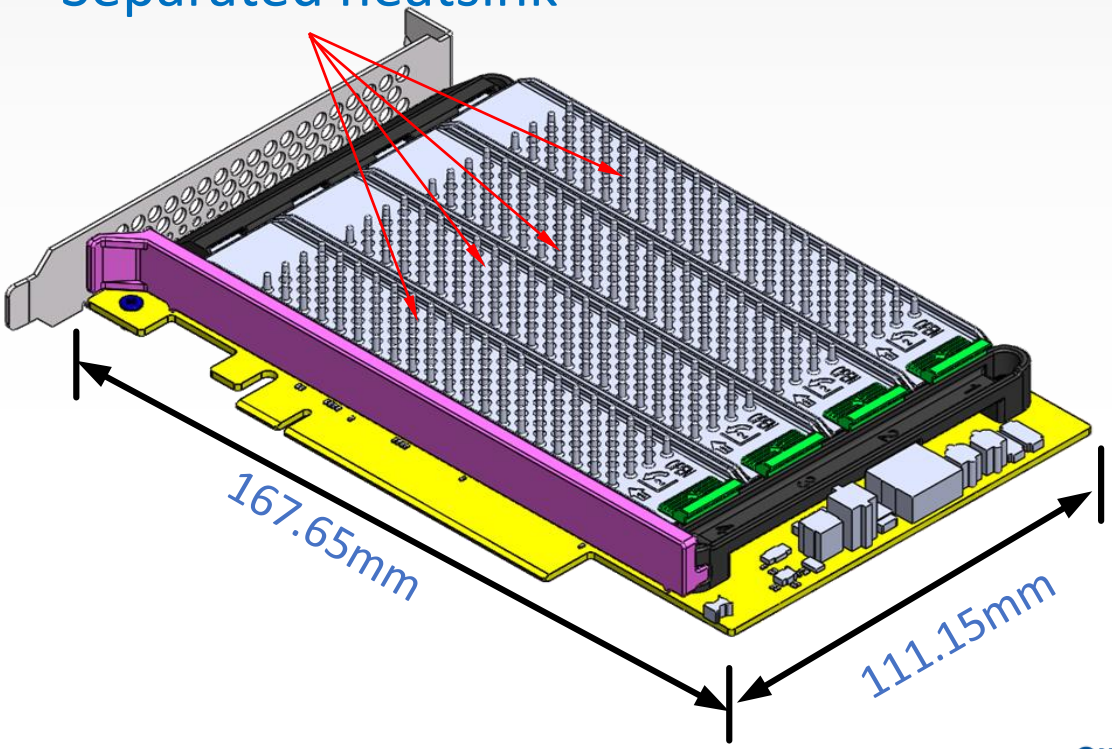
Expand your storage

Note: This card only works with compatible system, like QCT Rackgo X Tioga Pass

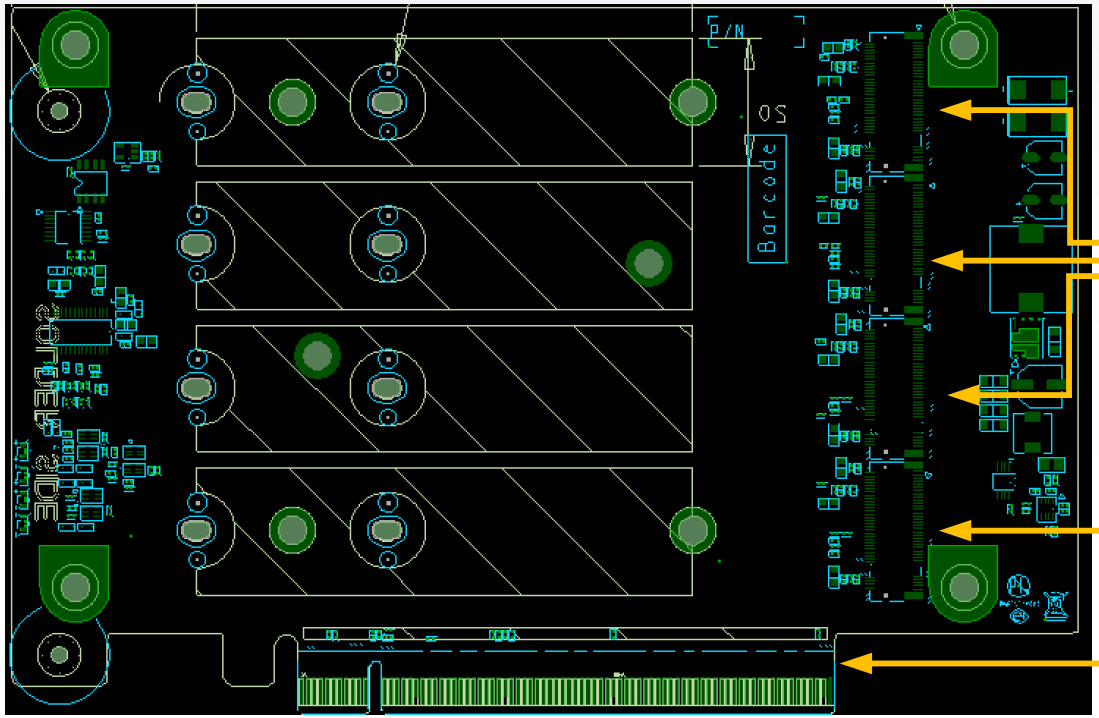
- Difficulty of scale-up upgrade in existing environment. When you are planning to expand your high bandwidth SSD for cache use or storage pool use, but the 2.5’’ SSD slots are full already
- This product intend to utilize the standard form factor for extra storage demand and enrich the use case of full height PCIe expansion slot for more possibilities over than NIC/GPGPU

Mechanical View and Dimension

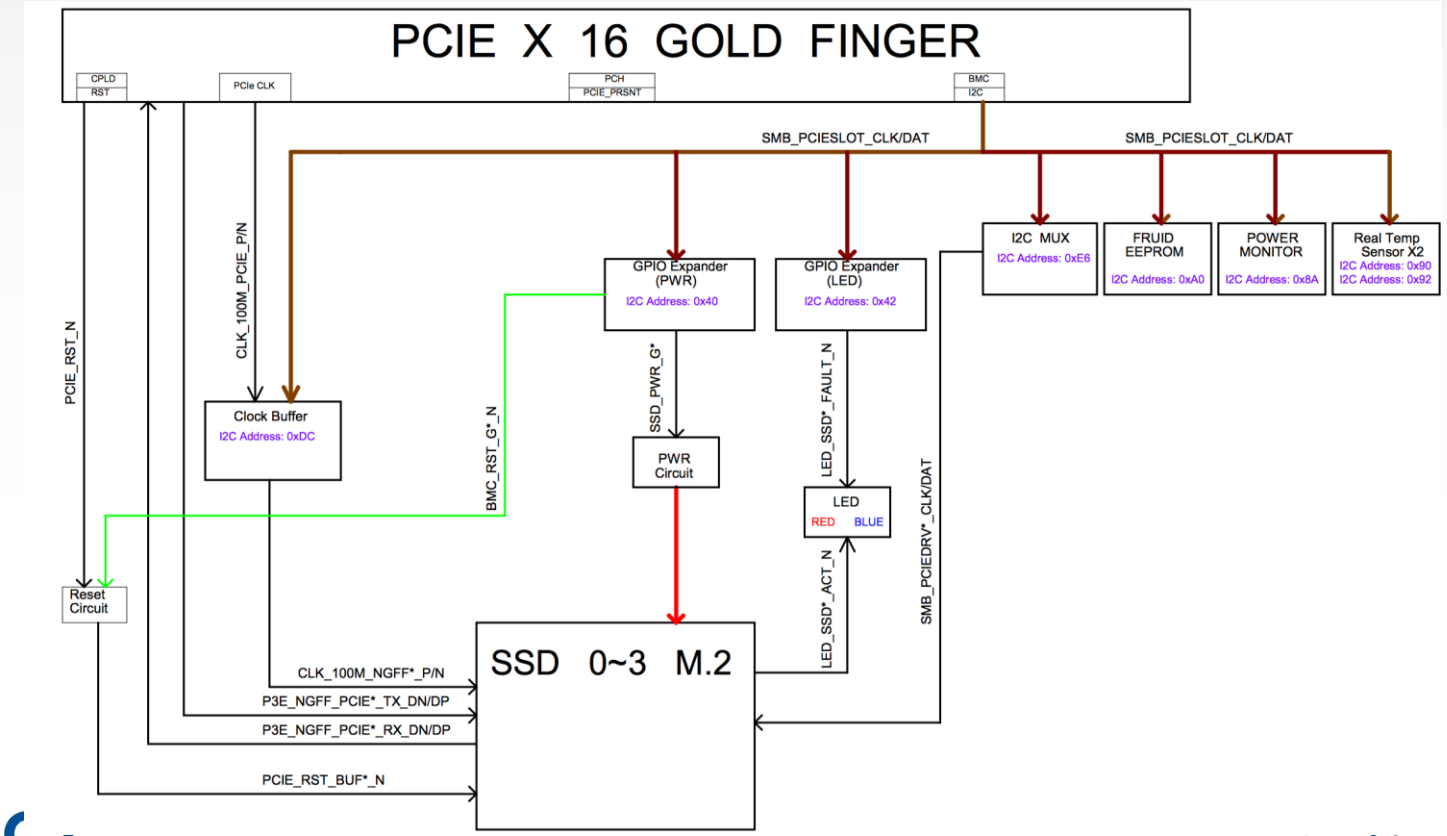
Separated heatsink



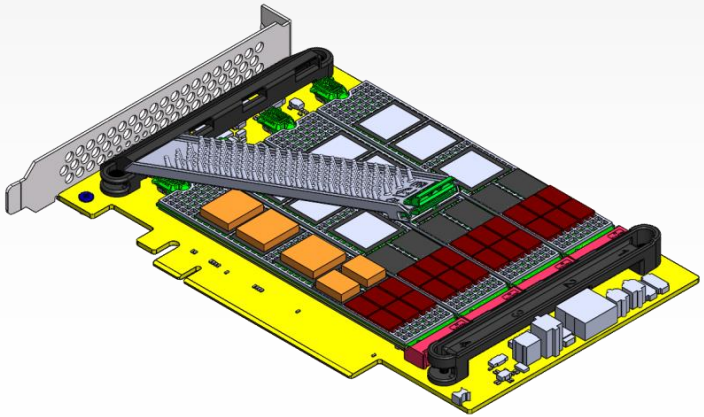
Key Part Placement

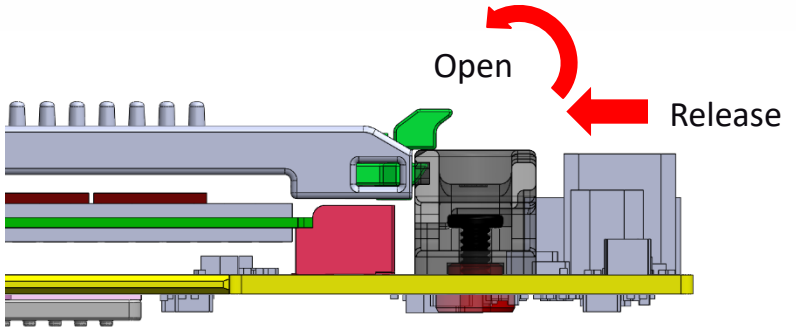


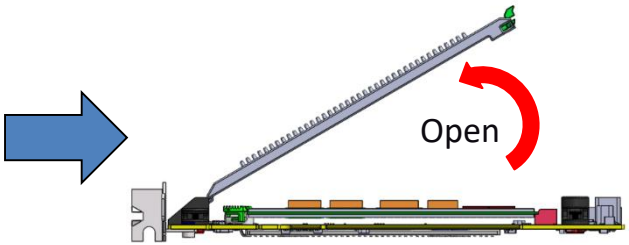
Block Diagram



Easy Changeable Operation of Heatsink & M.2 SSD

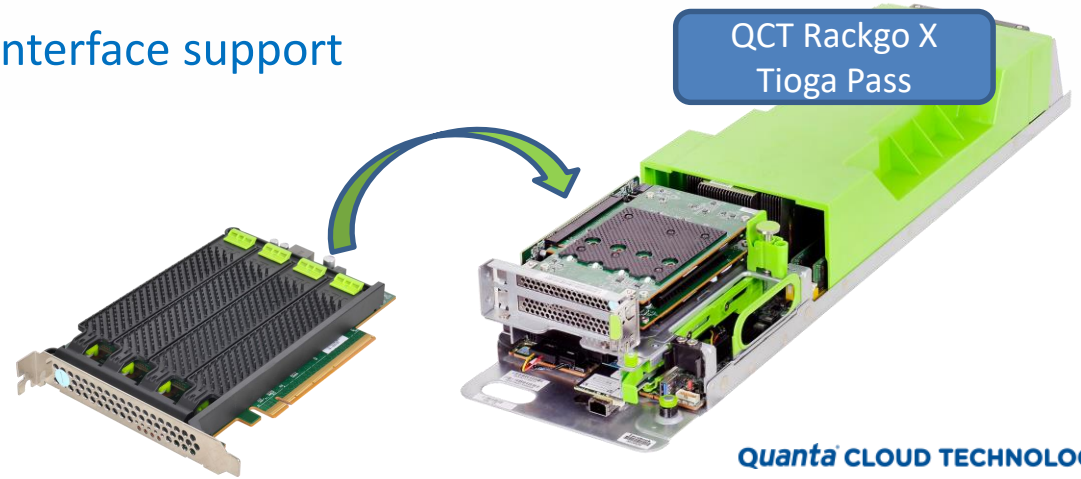






Compatible Components List & User Guide

- PCIe Bifurcation Requirement:
  - Please be noted that this card only works with the compatible system, like ‘’QCT Rackgo X Tioga Pass’’.
  - If you plan to adopt or use this card on your own systems directly, please check with your system solution provider to ensure the PCIex16 lanes for standard PCIe add-in card can be configured or bifurcated to 4x4 for the four M.2 devices which are installed on the AVA-4 M.2 carrier card.
- No supports hot-plug
- PCIe protocol only, no SATA interface support



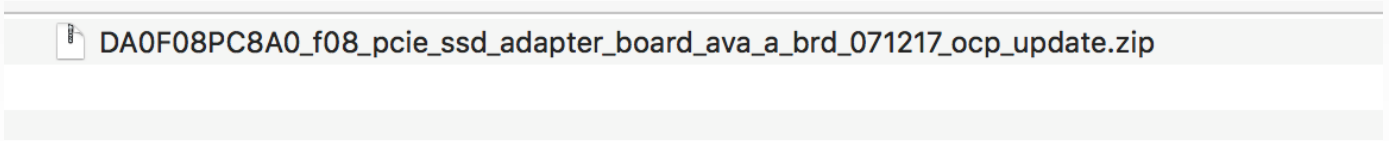
Design Enhancement

- Double side heatsink
  - Dissipate the heat from the M.2 module to allow the M.2 carrier card could withstand in harsher environment(up to +45°C)

- Power monitor
  - Real time monitor the main power:12V to take the protective action timely

Design Files Contribution- 01_Electricals

- 01_Full System Board Layout

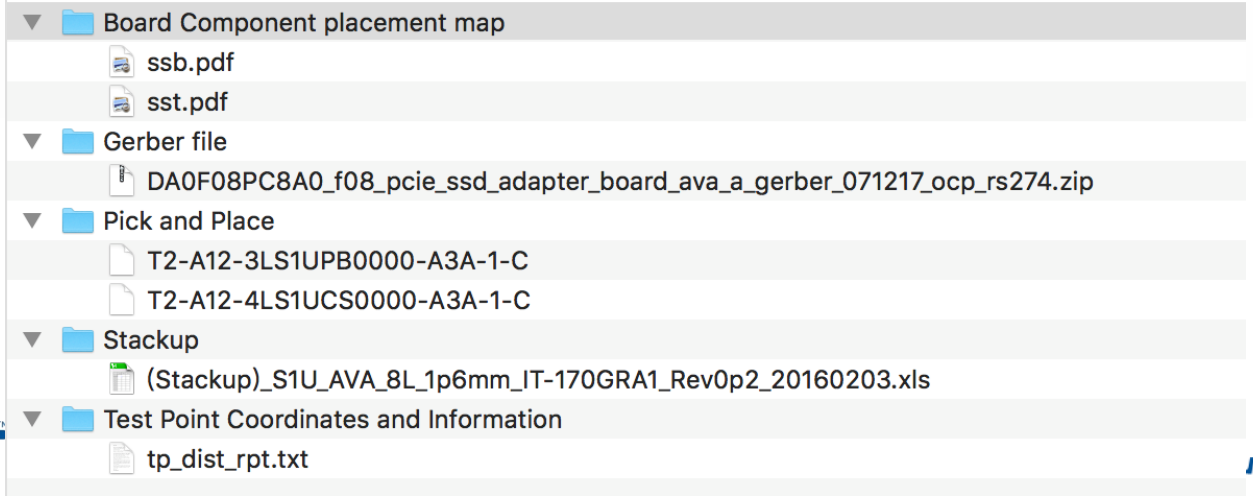


- 02_Full System Schematic CAD

Design Files Contribution- 01_Electricals

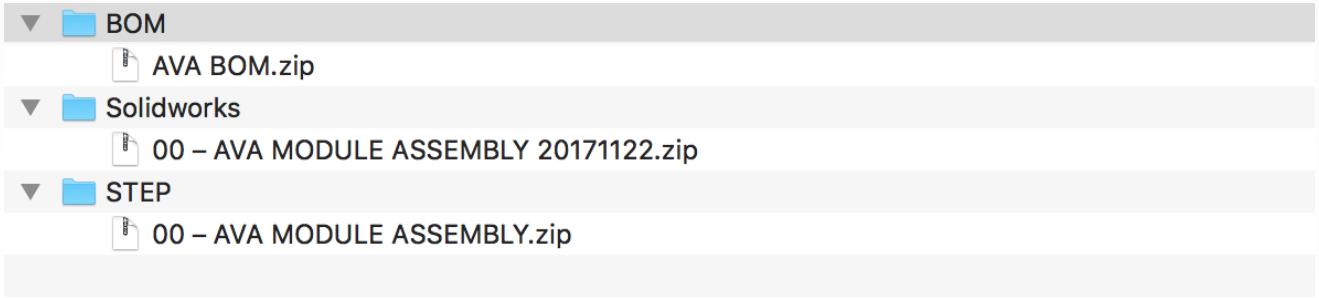
- 03_Full System Component BOM

- 04_Manufacturing Files



Design Files Contribution-02_Mechanicals

- Mechanical files



Design Files Contribution-03_Software

- NA, no firmware/software design

OCP Tenets/Principles

- **Efficiency**
  - Up to scalable 4x M.2 modules with double side heatsink could be used in the environment-friendly data center and cut the TCO(Total Cost of Ownership)
- **Scalability**
  - Design with full height dimension which meets PCI SIG CEM standard to be easily adopted for deployment of compute node with storage
- **Openness**
  - Design with full height dimension which meets PCI SIG CEM standard, with limited design effort on compute node
- **Impact**
  - Easily expand the storage pool with existing compute node, reduce the design effort and reserve more space for baseboard design

Thanks!!!