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DC-SCM 1.0 Update

NOVEMBER 9-10, 2021

SERVER

DC-SCM 1.0 Update

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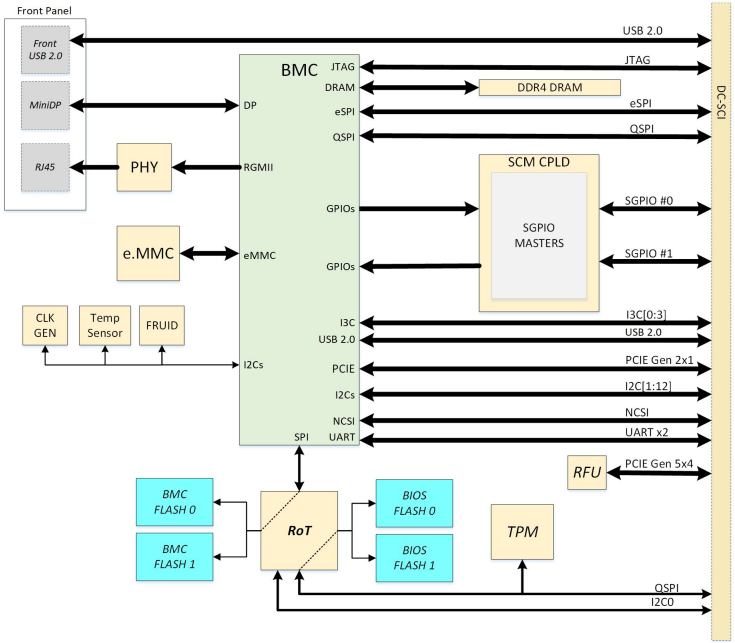
DC-SCM 1.0 Recap

Top Level Block Diagram



- Modularizes management and Security functionality.
- CPU and BMC vendor agnostic
- Scalable 1S, 2S, 4S…GPU, AI
- Standardized connector interface
- Standardized form factors
- Future proof

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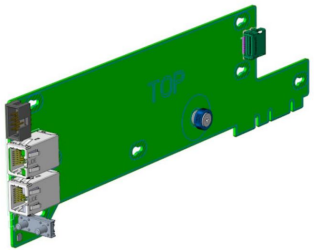
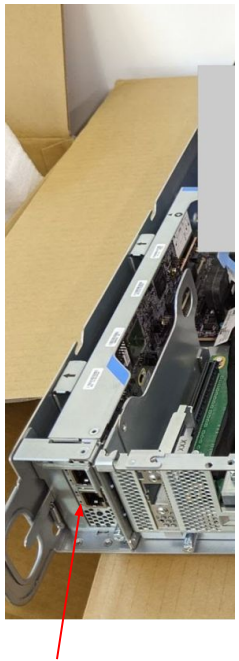
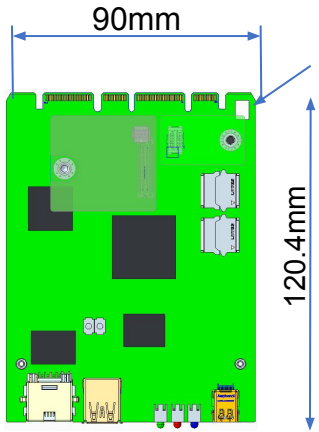
DC-SCM 1.0 Form Factors

Vertical Form Factor





Horizontal Form Factor



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What's New Since OCP 2020?

- Released OCP DC-SCM Spec to v1.0 (Link)
- Incorporated feedback received over previous iterations of the spec (Thank you for the great feed-back !)
- Some major changes
  - Added two additional I2C busses
  - Added a PCIe Gen5 x 4 interface for future expansion

What worked well?

- It has enabled us to build smaller/less expensive HPMs by moving the management circuit onto a board with lower cost/area.
- It has decoupled the BMC and RoT implementation from the server, allowing them to innovate and iterate at different rates.
- It has provided us a line-of-sight on having DC-SCM designs across multiple server programs, saving design and validation time.

Challenges

- Pinout and form-factor covers vast majority of use-cases. Some small number of corner cases not supported in DC-SCM v1.0.
- Requires up-front work (Hardware and Firmware) to make DC-SCM design work across multiple HPM architectures. "Plug and Program" still involves work for each server.
- Requires up-front work to enable standard CPLD implementation and Serial GPIO mappings.

Looking Ahead

- Google : We see it filling the needs of several upcoming server programs and will continue to use it until OCP DC-SCM 2.0 is finalized and needed to support our designs.
- MSFT: Common OCP DC-SCM 1.0 hardware across several of our current generation programs, and current line of sight indicates that we will continue that trend in future. Actively involved in DC-SCM 2.0 definition at OCP and evaluating it for future designs.

Call to Action

- Adopt the Modular Building Block Architecture using DC-SCM as the base.

- DC-SCM 1.0 specification is available. It is enabling high-volume designs going into production; take advantage of it in your new designs.

- DC-SCM 2.0 specification is currently in revision 0.7; provide feedback to make it better for 2023 products. Find it at Hardware Management Module Subgroup: https://www.opencompute.org/wiki/Hardware_Management/Hardware_Management_Module

- Stay tuned for Datacenter-ready Modular Hardware System (DC-MHS) and the Datacenter-ready

Thank you!

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