

OPEN POSSIBILITIES.

OCP NIC 3.0 Management with NC-SI 1.2



OCP
GLOBAL
SUMMIT

NOVEMBER 9-10, 2021

OCP NIC 3.0 Management with NC-SI 1.2

Hemal Shah, Distinguished Engineer and
Architect, Broadcom Inc.

Bob Stevens, Distinguished Member of
Technical Staff, Dell Technologies Inc.

OPEN POSSIBILITIES.



HW MANAGEMENT



OPEN
COMMUNITY®



Agenda

- OCP NIC 3.0 Manageability
- Sideband Management Interfaces and Transports
- OCP NIC 3.0 Manageability Features
- Network Controller Sideband Interface (NC-SI)
- NC-SI 1.2
- Call to Action



HW MANAGEMENT

OPEN POSSIBILITIES.



OCP NIC 3.0 Manageability

- OCP NIC 3.0 specification has enabled a wide spectrum of next generation NIC board designs
- One of the key aspects of OCP NIC 3.0 specification is standards-based manageability



HW MANAGEMENT

OPEN POSSIBILITIES.



Sideband Interfaces and Transports



- Based on DMTF NC-SI and MCTP Standards
- Three possible physical interface implementations

HW MANAGEMENT

Management Type	Definition
RBT Type	The RBT Type management interface is exclusive to the Reduced Media Independent Interface (RMII) Based Transport (RBT) as defined in DMTF DSP0222 Network Controller Sideband Interface (NC-SI) Specification
MCTP Type	The MCTP management interface supports MCTP standards, specifically DSP0236 Management Component Transport Protocol (MCTP) Base Specification, and the associated binding specs
RBT+MCTP Type	The RBT+MCTP management interface supports both the RBT and MCTP standards. This is the preferred implementation.

OPEN POSSIBILITIES.



OCP NIC 3.0 Manageability Features



HW MANAGEMENT

- BMC MAC Address provisioning
- Temperature Monitoring
- Power reporting
- Firmware inventory and update
- FRU enhancements

OPEN POSSIBILITIES.



Network Controller Sideband Interface

- Network Controller Sideband Interface (NC-SI) spec defines
 1. Pass-through, Commands/Responses, and Notifications
 2. NC-SI over RBT: Physical-level: RMII, HW arb; Media-level: Ethernet
 3. NC-SI over MCTP: Enables NC-SI comms over an MCTP network



HW MANAGEMENT

- OCP NIC 3.0 spec leverages NC-SI over both RBT and MCTP
- Spec defines NC-SI package addressing & HW arb requirements
- SMBus and RBT pins are defined on the primary connector
- NC-SI over RBT timings are defined to help NIC/baseboard implementations
- NC-SI routing guidelines are defined to help NIC/baseboard implementations

OPEN POSSIBILITIES.



NC-SI 1.2

- Enhancement to NC-SI 1.1 to cover OCP NIC 3.0 and other use cases
- Work-In-Progress Specification
- Covers specific enhancements for OCP NIC 3.0 Manageability
 1. Command to retrieve provisioned BMC MAC address
 2. Reporting of ASIC, Ambient, and SFF module temperatures
 3. Ethernet link status reporting enhancements – new speeds, modules, PHY cfg..
- Other enhancements
 1. PLDM over RBT improvements
 2. Management of NIC partitions
 3. Get/Set boot configuration for Ethernet , FC, and IB
 4. Link status and statistics reporting for FC and IB



HW MANAGEMENT

OPEN POSSIBILITIES.



Call to Action

- OCP NIC 3.0 Manageability – standards based, leverages NC-SI 1.2
- Contribute to OCP NIC 3.0 and NC-SI specifications
- Submit proposals for specification considerations

OCP NIC 3.0 1.2 Specification:

<http://files.opencompute.org/oc/public.php?service=files&t=2584944fe4bb7903fcbcbd4184f6cfd5>

NC-SI 1.2 Specification (Work-In-Progress):

https://www.dmtf.org/sites/default/files/standards/documents/DSP0222_1.2.0WIP80.pdf

OPEN POSSIBILITIES.



Thank you!

