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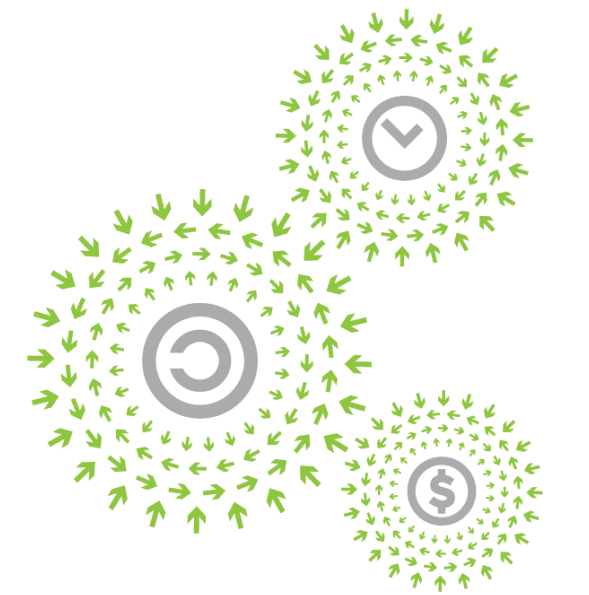


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OCP NIC 3.0 Power with Intel® Products

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Specifications



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Goal

- OCP NIC 3.0 Specification
- Ethernet Power Challenge
- Power State Machine
- Power Delivery Example
- Power Envelope Flexibility
- Baseboard Power Options
- Intel Product Details
- Call to Action



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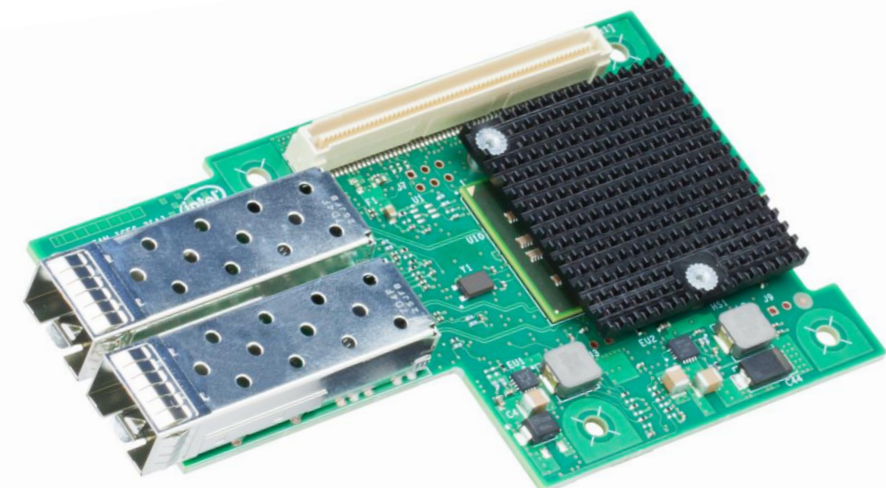


Specifications

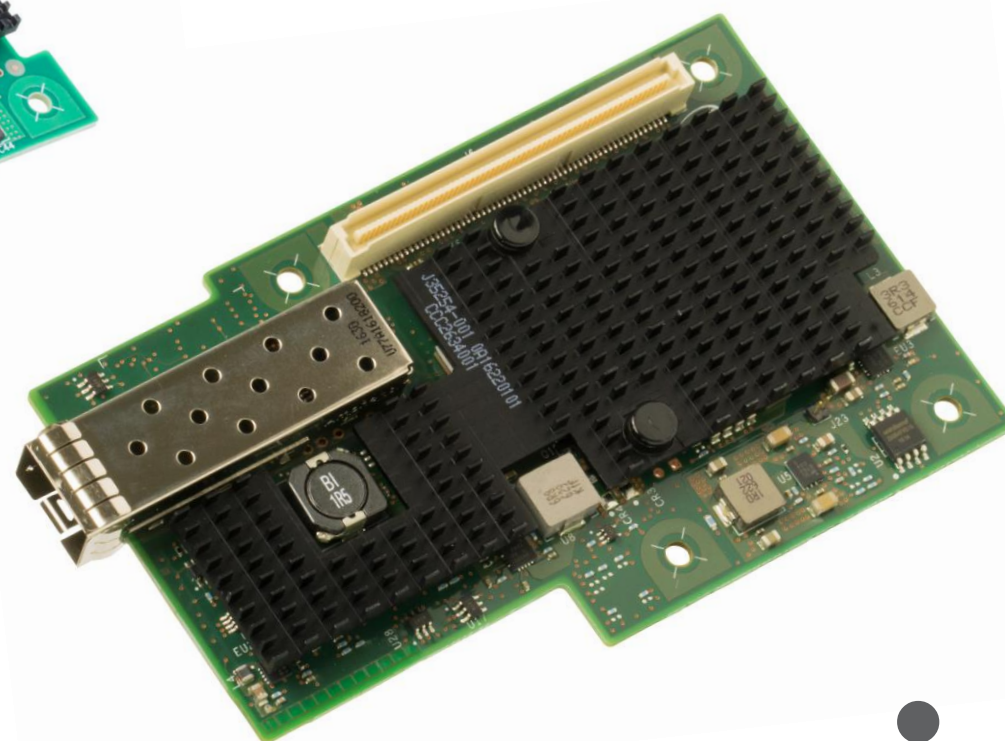
OCP NIC 3.0 Specification



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OCP Mezz 2.0



- OCP Mezz provided a small NIC focused form factor with management interfaces optimized for datacenters
- OCP NIC 3.0 improves serviceability, power delivery, management, specification clarity, and is ready for broad market servers



OCP NIC 3.0



Specifications

Ethernet Power Challenge



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- PCIe CEM allows for about 1 W AUX power mode
- Ethernet optics may require 1.5 W+ per port
- Power consumption can't be pre-determined on a PCIe CEM



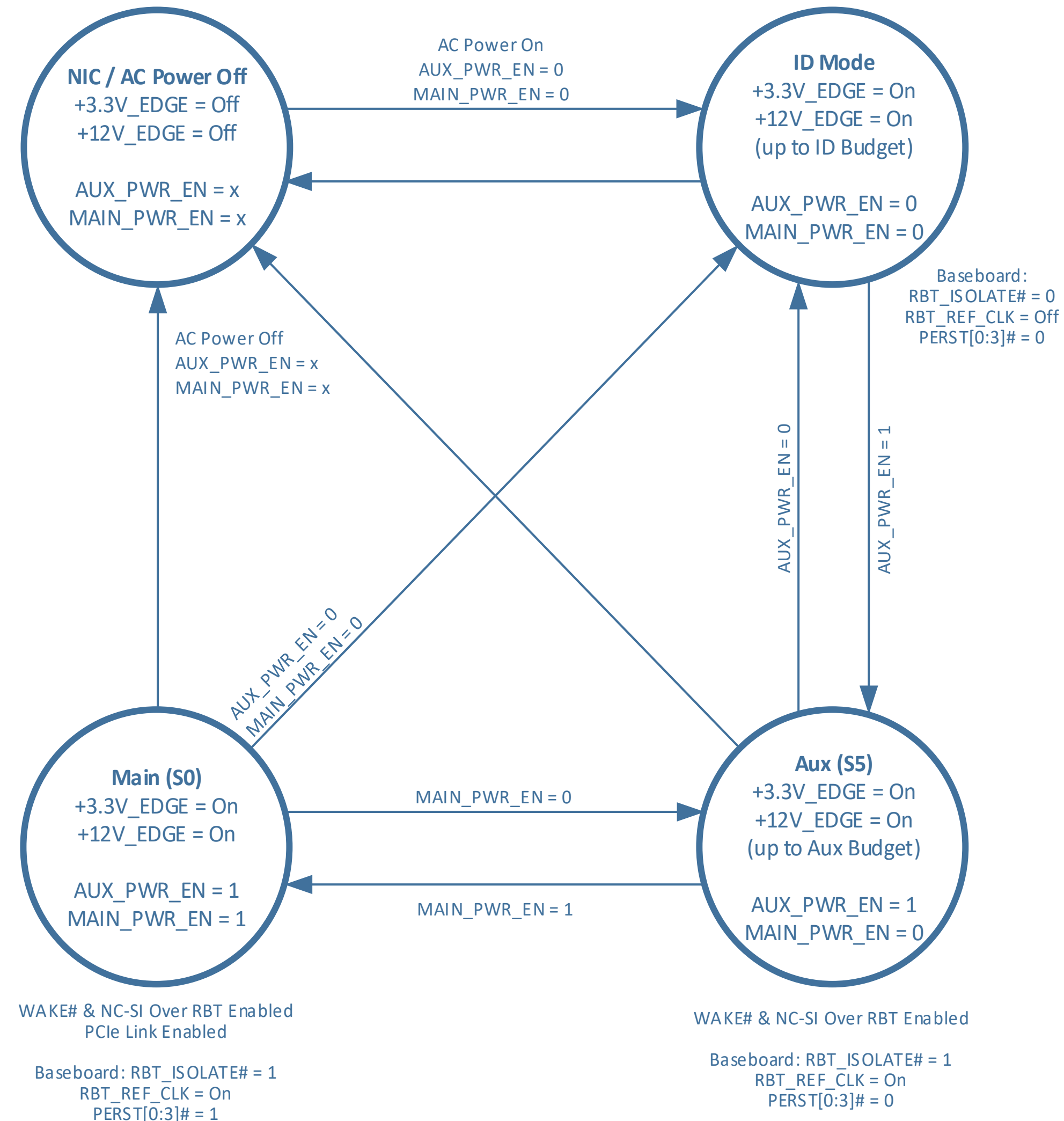
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Power State Machine



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- No Separate pins for AUX power. Enable pins drive state.
- ID Mode: Determine card capabilities
- AUX: Enable Ethernet link and management
- Main: Full function

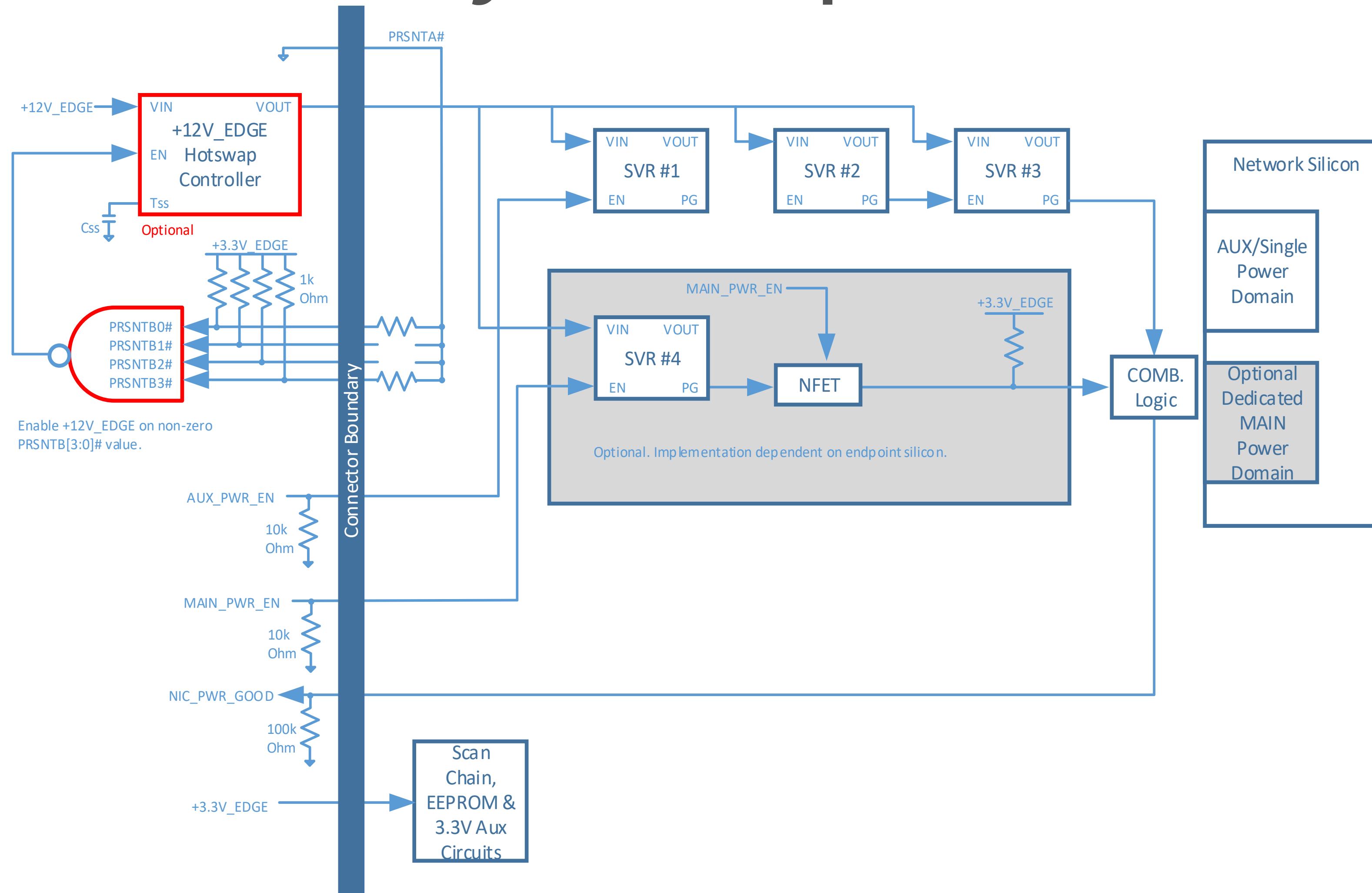


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Power Delivery Example



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Enable +12V_EDGE on non-zero PRSENTB[3:0]# value.

Optional. Implementation dependent on endpoint silicon.



Specifications



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Power Envelope Flexibility

Table 38: Baseboard Power Supply Rail Requirements – Slot Power Envelopes

Power Rail	15 W Slot SFF Hot Aisle	25 W Slot SFF Hot Aisle	35 W Slot SFF Hot Aisle	80 W Slot SFF Cold Aisle	150 W LFF Cold Aisle
+12V_EDGE					
Voltage Tolerance	+8%/-12% (max)	+8%/-12% (max)	+8%/-12% (max)	+8%/-12% (max)	+8%/-12% (max)
Supply Current					
ID Mode	50 mA (max)	50 mA (max)	50 mA (max)	50 mA (max)	50 mA (max)
Aux Mode	0.7 A (max)	1.1 A (max)	1.5 A (max)	3.3 A (max)	6.3 A (max)
Main Mode	1.25 A (max)	2.1 A (max)	2.9 A (max)	6.6 A (max)	12.5 A (max)
Capacitive Load ³	500 µF (max)	500 µF (max)	500 µF (max)	500 µF (max)	1000 µF (max)

Table 52: FRU EEPROM Record – OEM Record 0xC0, Offset 0x00

Offset	Length	Description
4	1	Card Max power (in Watts) in MAIN (S0) mode. The encoded value is the calculated max power of the OCP NIC 3.0 card in the Main Power (S0) mode only and does not include the consumed power by transceivers plugged into the line side receptacle(s). 0x00 – 0xFE – Card power rounded up to the nearest Watt for fractional values. 0xFF – Unknown
5	1	Card Max power (in Watts) in AUX (S5) mode. The encoded value is the calculated max power of the OCP NIC 3.0 card in the Aux Power (S5) mode only and does not include the consumed power by transceivers plugged into the line side receptacle(s). 0x00 – 0xFE – Card power rounded up to the nearest Watt for fractional values. 0xFF – Unknown

Power delivery envelopes:

SFF: 15, 25, 35, 80 W

LFF: 150 W



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Baseboard Power Design Options



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- Optionally pre-qualify OCP NIC 3.0 cards prior to use
 - Card is simultaneously powered on with baseboard
- Optionally design in a BMC with AUX power mode support
- Optionally provide hot plug support



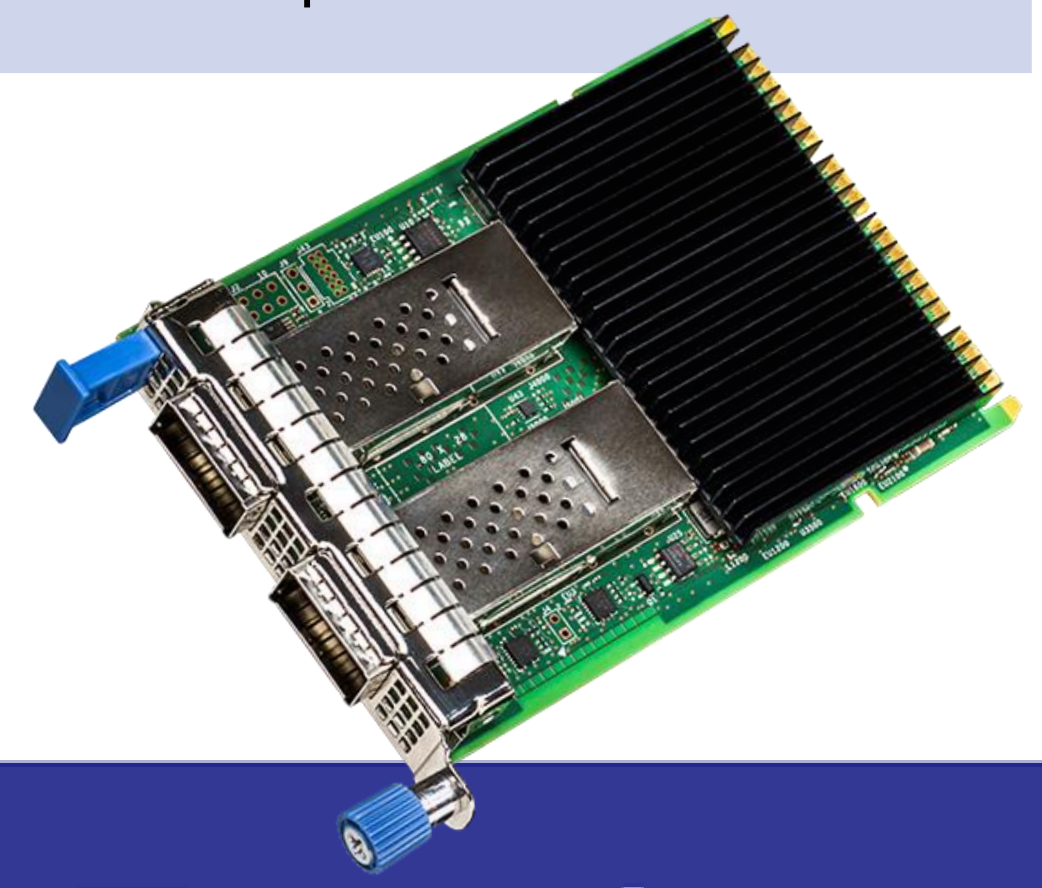
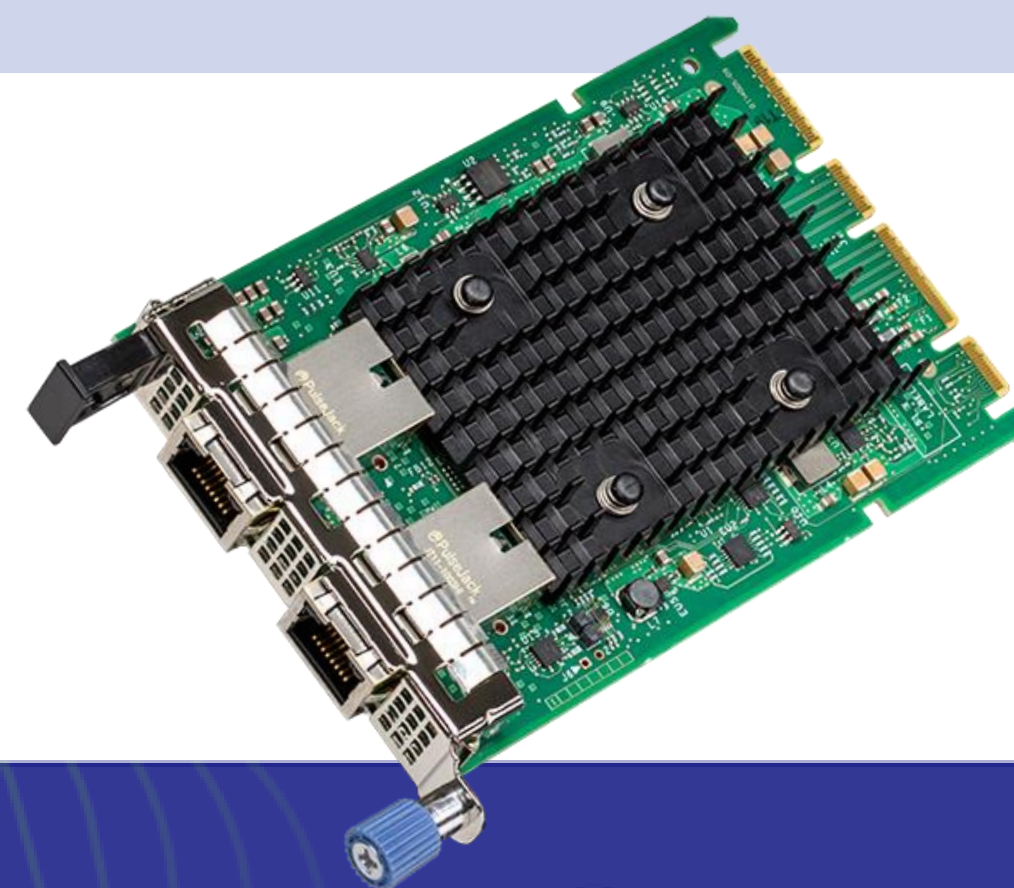
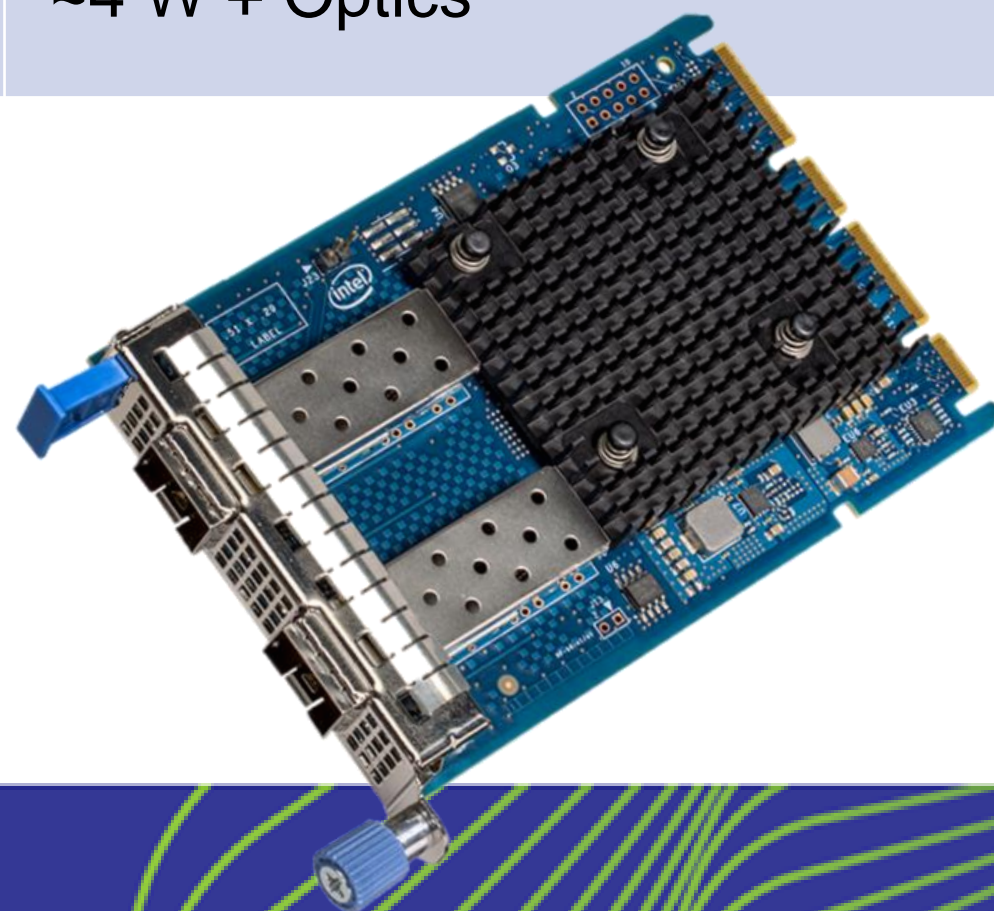
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Intel® OCP NIC 3.0 Product Family



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Product	Intel® Ethernet Network Adapter X710 for OCP NIC 3.0	Intel® Ethernet Network Adapter I350-T4 for OCP NIC 3.0	Next-Generation 10GBASE-T Intel® Ethernet Adapter for OCP NIC 3.0	Next-Generation Intel® Ethernet Adapters for OCP NIC 3.0
Speed	10GbE	1GbE	10/5/25/1GbE	Up to 100GbE
Connector	SFP+	RJ45 (1000BASE-T)	RJ45 (10G/NBASE-T)	SFP28, QSFP28
Ethernet Controller	Intel® Ethernet Controller X710	Intel® Ethernet Controller I350	Next-Generation 10GBASE-T Intel® Ethernet Controller	Next-Generation Intel® Ethernet Controller
Port Count Options	Quad-Port, Dual-Port	Quad-Port	Quad-Port, Dual-Port	Quad-Port, Dual-Port
Power Profile	~4 W + Optics	~ 4 W	TBD	TBD + Optics



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Contact Thomas and Paul if you have questions about how we implement our cards and alignment to the specification.

Where to buy: <https://intel.com/ethernet>

OCP NIC Project Wiki with latest specification : <http://www.opencompute.org/wiki/Server/Mezz>

Mailing list: <https://ocp-all.groups.io/g/OCP-NIC>



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OCP Global Summit | March 14–15, 2019

