

NCS SoC Capability

Networking & Communication Solutions (NCS)

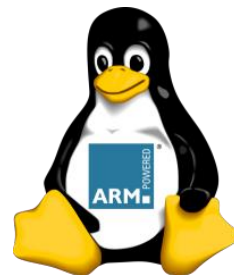
Product Design Experience



- ❖ Network Security Appliance (Fanless Desktop to 1U, WiFi, LTE/5G)
- ❖ Industrial grade Fanless Security Appliance (-40 to 70°C. WiFi, LTE)
- ❖ Industrial grade Fanless NAS (-40 to 85°C)
- ❖ 2-port 100G + 4-port 10G switch board for 10G EPON OLT (5U)
- ❖ 32-port 10G modular Ethernet Switch (1U)
- ❖ WiFi AP/Router (2x2/3x3/4x4, 11n/11ac, DB/DBDC)
- ❖ WiFi Modules (2.4/5GHz 11n/11ac)
- ❖ xDSL Router/IAD (ADSL2+, VDSL2)
- ❖ Storage - NAS/NVR/SAN (2~24Bay)
- ❖ Managed Ethernet Switch
- ❖ POE PSE/PD (IEEE 802.3af/at/bt)
- ❖ Vehicular multimedia (2G/3G, GPS, Touch screen)



SoC Strategic Partners



HW Design Capabilities



- ❖ 100G Ethernet (QSFP28)
- ❖ 40G Ethernet (QSFP+)
- ❖ 25G-KR and 25G Ethernet (SFP28)
- ❖ 10G Ethernet (RJ45/SFP+)
- ❖ DDR4
- ❖ SATA 3.0 / SAS 2.0
- ❖ USB 3.2 Gen 1x1 (USB 3.0)
- ❖ PoE PSE/PD (IEEE 802.3af/at/bt)
- ❖ WiFi/LTE/5G RF design
- ❖ PCBA design up to 20 layers
- ❖ High Efficient Power Design
- ❖ Rugged Industrial-Grade Fanless Design

The background of the slide features a blue-tinted city skyline at night, overlaid with glowing white arcs representing network connections. A large, semi-transparent "5G" text is positioned in the upper right quadrant. In the bottom left corner, there is a light gray geometric shape consisting of a parallelogram and a triangle.

NCS SoC Products

1U Network Appliance



NSA 3640



NXP LS2088A

- NXP™ LS2088A, 8-core ARM64 A72
- 4x DDR4-2400 DIMM slots
- 4x 10GbE copper ports (RJ45)
- 4x 10G fiber ports (SFP+)
- 1x PCIe Gen3 x8 slot
- 1x PCIe Gen3 x4 slot
- 2x RS-232 console ports
- 2x USB 3.0 ports
- 2x SATA 3.0
- 300W ATX Power Supply
- MP

NSA 5640



NXP T4240

- NXP™ T4240, 12-core PowerPC
- 3x DDR3-1866 DIMM slots
- 8x 1GbE copper ports (RJ45)
- 4x 10Gb fiber ports (SFP+)
- 1x PCIe Gen2 x 8 slot
- 1x PCIe Gen2 x 4 slot
- 2x RJ45 console ports
- 2x USB 2.0 ports
- 2x SATA 2.0
- 300W ATX Power Supply
- MP

NSA 6310



NXP LX2160

- NXP™ LX2160A, 8/16-core ARM64 A72
- 4x DDR4-3200 ECC-DIMM slots
- 4x 1GbE copper ports (RJ45)
- 1x RJ45 console port
- 2x USB 3.0 ports
- Support two optional LAN modules
 - 2/4x 25G SFP28 fiber ports
 - 4x 10G SFP+ fiber ports
 - 4x 10G/1G RJ45 copper ports
- 1x PCIe Gen3 x8 for external AI/LAN card
- 1x SATA 3.0 SSD
- 1x M.2 SATA 2.5" SSD
- Support Secure boot and TPM 2.0
- Support optional WiFi and LTE modules
- Support optional PoE on copper LAN modules
- 550W 1+1 Redundant CRPS Power Supply
- Q1, 2022

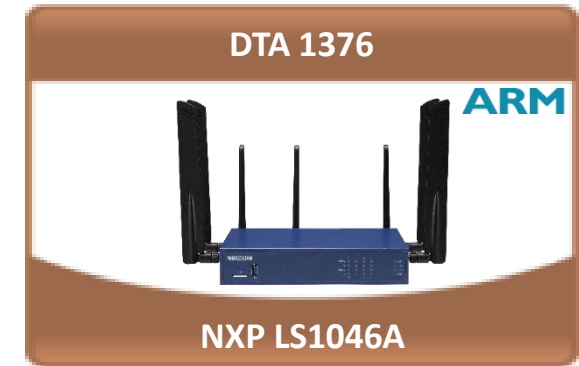
Desktop Network Appliance



- NXP™ LS1012A, 1-core ARM64 A53
- On-board 256MB DDR3
- On-board 128MB QSPI SLC NAND Flash
- 1x 1G combo port (RJ45/SFP)
- 4x 1GbE copper ports (RJ45)
- 1x RJ45 console port
- 2x USB 3.0
- Support optional Wi-Fi module
- Fanless
- MP



- NXP™ LS10x3A, 2/4-core ARM64 A53
- On-board 1GB DDR3
- On-board 256MB SLC NAND Flash
- 1x 1G combo port (RJ45/SFP)
- 4x 1GbE copper ports (RJ45)
- 2 of copper ports support optional PoE af/at PSE
- 1x Mini-USB console
- 2x USB3.0 ports
- Support optional Wi-Fi module
- Fanless
- MP



- NXP™ LS10x6A, 2/4-core ARM64 A72
- DDR4 ECC SO-DIMM
- On-board 64MB SLC NOR Flash
- On-board 8GB eMMC
- 7x 1GbE copper ports (RJ45)
- Support optional Wi-Fi module
- Support optional LTE/5G modules
- Support optional NVMe SSD
- 1x Mini-USB console
- 2x USB3.0 ports
- Secure boot
- Optional power input by DC48V~54V
- Optional power input by PoE
- MP : 2022Q2

Rugged NAS Product

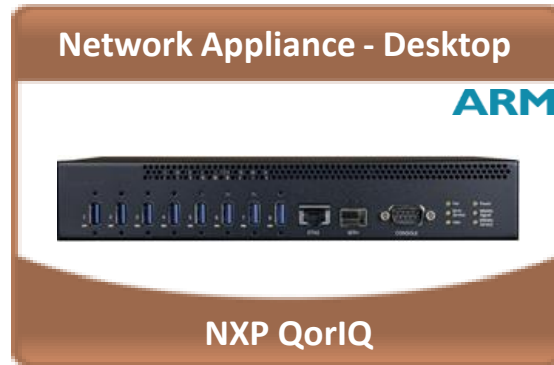


- Rugged industrial fanless NAS
- Marvell™ 88F6820, 2-core ARM A9
- On-board 512MB DDR3
- On-board 4GB MLC eMMC
- 2x 1GbE PoE PD Ports with M12 waterproof connector
- 1x 1GbE Management Port with M12 waterproof connector
- 3x 2.5" SATA III SSD/HDD
- Powered by PoE with redundancy
- MP

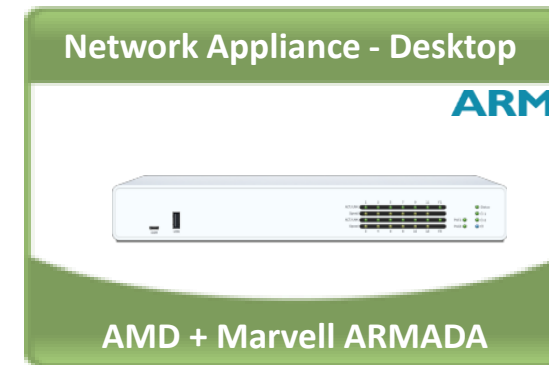
The background of the slide features a blue-tinted aerial view of a city skyline, likely New York City, with numerous skyscrapers. Overlaid on this are several glowing white arcs representing network connections. In the upper right, the text "5G" is displayed in large, bold, blue letters, surrounded by circular motion lines and arrows, suggesting high-speed connectivity and network technology.

ODM Projects

Desktop Network Appliance

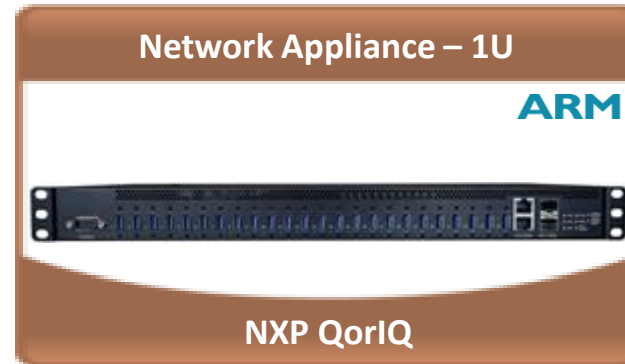


- NXP™ QorIQ, 4-core ARM64 A72
- On-board DDR4
- On-board SLC eMMC
- Support 10Gb combo port (RJ45/SFP+)
- Multiple USB 3.0 ports
- 1x PCIe socket
- MP



- AMD™ R-Series CPU, 4-core, x86
- Marvell™ ARMADA, 4-core, ARM64 A72
- Support DDR4 DIMM slots
- Support 2.5/1GbE copper ports (RJ45)
- Support 1Gb fiber ports (SFP)
- Support PoE af/at PSE
- Support M.2 SATA SSD
- Support USB3.0/2.0
- Support microUSB and RJ45 console
- Support TPM 2.0
- Support optional WiFi and LTE/5G
- MP

1U Network Appliance



- NXP™ QorIQ, 4-core ARM64 A72
- On-board DDR4
- On-board SLC eMMC
- Support 10Gb combo port (RJ45/SFP+)
- Multiple USB 3.0 ports
- 1x PCIe socket
- Dual ATX Power Supply
- MP

NAS



4-Bay NAS Router



ARM

NXP QorIQ

- NXP™ QorIQ, 4-core ARM64 A72
- DDR4 SO-DIMM
- On-board QSPI Flash
- On-board SLC eMMC
- Support 10/1GbE copper ports (RJ45)
- Support USB 3.0 port
- 4-bay 3.5" or 2.5" SATA III HDD/SSD
- NEXCOM Atlas OS™
- Q4, 2022

2U 12-Bay NAS



ARM

Annapurna Alpine v1

- Annapurna™ Alpine v1, 4-core ARM A15
- DDR3 ECC DIMM
- On-board SPI Flash
- On-board SLC NAND Flash
- Support 10G/1G copper ports (RJ45)
- Support USB 3.0/2.0 ports
- Support Micro USB console
- 12-bay 3.5" or 2.5" SATA III HDD/SSD
- 1+1 Redundant Power
- MP

2U 12-Bay NAS



ARM

Annapurna Alpine v2

- Annapurna™ Alpine v2, 4-core ARM64 A57
- DDR4 ECC DIMM
- On-board SPI Flash
- On-board SLC NAND Flash
- Support 10G/1G copper ports (RJ45)
- Support USB 3.0/2.0 ports
- Support Micro USB console
- 12-bay 3.5" or 2.5" SATA III HDD/SSD
- 1+1 Redundant Power
- Q4, 2021

Ethernet Switch



100G Switch Board



Marvell Armstrong

- Marvell™ ARMADA 2-core
- Marvell™ Armstrong 100G Switch
- Support 10GbE copper ports (RJ45)
- Support 100Gb fiber ports (QSFP28)
- Multiple 25Gb-KR to backplane
- Support SyncE & IEEE 1588 v2
- For 5U 10G EPON OLT system
- MP

32-port Modular 10G Switch



Marvell Aldrin

- Marvell™ ARMADA 2-core
- Marvell™ Aldrin Switch
- Four optional LAN modules
 - 8-port 1GbE copper with optional PoE+ (RJ45)
 - 8-port 10GbE copper with optional PoE+ (RJ45)
 - 8-port 10Gb fiber ports (SFP+)
 - 2-port 40Gb fiber ports (QSFP+)
- 1+1 Redundant Power
- Support SyncE & IEEE 1588 v2
- MP

The background of the slide features a blue-tinted aerial view of a city skyline, likely New York City, with numerous skyscrapers. Overlaid on this are several glowing white arcs representing signal paths or data connections. In the upper right, the text "5G" is displayed in large, bold, blue letters, partially enclosed by a circular graphic element with arrows, suggesting high-speed connectivity.

Design & Qualifications

Design and Qualifications



- ❖ High Level System Block Diagram and PCB Pre-placement
- ❖ Thermal and System Integrity Simulations
- ❖ Detail System Block Diagram
- ❖ Power Budget Calculation
- ❖ Schematic & Layout Tools
- ❖ Engineering Verification Test Plan
 - EVT Test Report
- ❖ Signal Integrity Measurement Equipment
- ❖ Ethernet Performance Analysis System
- ❖ EMI / Safety Test Equipment
- ❖ Reliability Test Equipment

Design Simulations



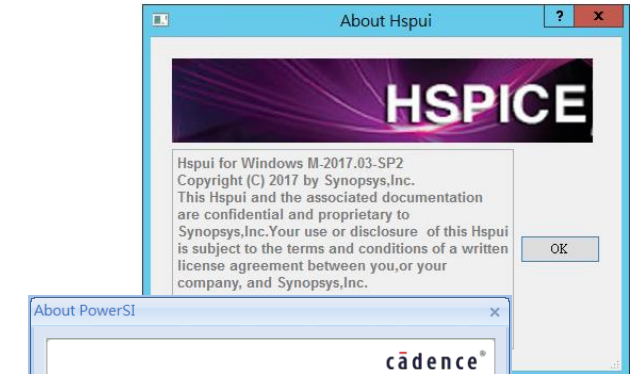
❖ Thermal Simulation Tool

- FloTHERM 10.1



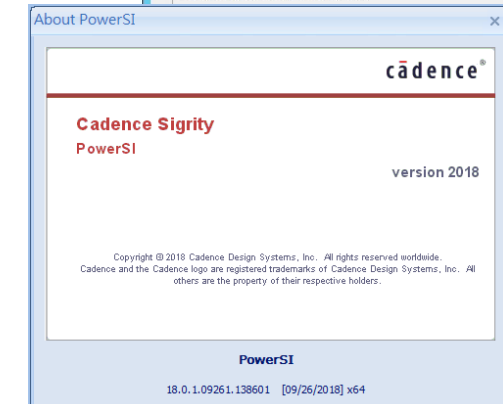
❖ Signal Integrity (SI) Simulation Tool

- Synopsys HSPICE



Time and Frequency domain simulations

- Cadence Sigrity PowerSI / PowerDC / OPI / 3DEM



Frequency domain simulation and PCB trace extraction

- Keysight ADS / Momentum

Time and Frequency domain simulations and PCB trace extraction



**Thank
You**