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)
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
NCS SoC Products
1U Network Appliance

**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

**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

**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

**PDTA 1370**
- 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

**PDTA 1372**
- 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

**DTA 1376**
- 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
iNAS 330

Marvell 88F6820

• 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
Desktop Network Appliance

Network Appliance - Desktop

- 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

Network Appliance - Desktop

- 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

- 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

- 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

Q4, 2022

2U 12-Bay NAS

- 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™ ARMADA 2-core
- Marvell™ Armstrong 100G Switch
- Support 10GbE cooper 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™ ARMADA 2-core
- Marvell™ Aldrin Switch
- Four optional LAN modules
  - 8-port 1GbE cooper with optional PoE+ (RJ45)
  - 8-port 10GbE cooper 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
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