Lanner

Network Computing

Innovative Platforms for Next Generation Network Infrastructure



Lanner's Leadership in Network Appliance

Cloud computing and high-speed mobile communications networks have exponentially increased the Internet traffic, placing enormous workload demands onto network appliances. Such network demand is attracting increasing numbers of sophisticated and well-prepared malware, viruses, and other information security risks; service providers and infrastructure owners are in need of innovative, next-generation platforms with high-performance and high-throughput processors for implementing hardware security measures that could carry out deep packet inspection and virus scanning in a thorough and swift manner.

Lanner has been the leader in the rapid-growing information security industry for over three decades and is dedicated to supplying innovative and next-generation hardware platforms with advanced architectures. According to Gartner Magic Quadrants, 60% of all 46 companies supplying Enterprise Network Firewalls, UTM, Wired/Wireless LAN, WAN optimization and Application Delivery use hardware made by Lanner. Lanner had thus far shipped over 2 million networking appliances, reaching a significant corporate milestone. Such demand demonstrates Lanner's strength and commitment to designing superior network platforms in the field.

With SD-WAN becoming the most anticipated WAN Services today, Lanner's desktop network platforms have been successfully deployed in more than 11 of the 20 industry-leading SD-WAN solution providers, according to the latest Gartner's Magic Quadrant report on WAN Edge Infrastructure. With multiple success stories showing Lanner appliances' capabilities in various deployment settings, Lanner desktop network platforms are proved to be highly customizable for not only meeting customer demands in enterprise networking hardware but also for building a better network platform for the businesses they serve, greatly accelerating the time-to-market and reducing time needed for validation.

As the industry requires higher quality, more advanced and more powerful network appliances, we will continue our expertise, and will support our clients and partners in full dedication so we can all grow together.

Jeans Tseng
CTO

About Lanner

Lanner Electronics Inc. (TAIEX 6245) is a world-leading hardware provider in design, engineering, and manufacturing services for advanced network appliances and rugged industrial computers.

With 33-year experiences, Lanner provides reliable and cost-effective computing platforms with high quality and performance. Today, Lanner has a large and dynamic manpower with approximately 1,000 well-experienced employees worldwide with the headquarters in Taipei, Taiwan and subsidiaries in the US, Canada, China and Europe.

Global Manufacturing Capabilities

Taipei, Taiwan

- Area 30,000 m²
- 3 x SMT, DIP and assembly lines
- Production capacity: 30,000 system units/month

Certifications

- ISO 26262:2021
- ISO 9001:2008
- ISO 14001:2004
- ISO 28000:2007
- QC 080000:2012
- OHSAS 18001:2007
- TL 9000:R5.5
- ISO 27001:2013

Service Capabilities

- Custom design and production in board, chassis and system
- High mix low volume manufacturing
- Quality assurance services
- Global order fulfillment services

Beijing and Dongguang, China

- Area 15,200 m²
- 5 x Assembly lines
- Production capacity: 8,000 system units/month

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Why Lanner?

Lanner has the leading technological advantages and long-established manufacturing processes to service clients with customized solutions for mission-critical applications. Lanner possesses well-managed manufacturing lines, and is capable of customizing both hardware and software parts of a platform, including chassis, dimensions, modular/fixed ports, BIOS, IPMI, acceleration cards, NIC modules, and required certifications.

Strong Allies

Lanner's membership in industrial-leading alliances enables us to provide the latest technology, and extend your product lifecycles.

Intel®

Lanner is an Associate Member of the Intel® Network Builders Partner, a community of SDN/NFV developers, system integrators, OEMs and solution providers committed to the development of modular, standards-based solutions on Intel® technologies.

AMD®

Advanced Micro Devices, Inc. is an American multinational semiconductor company that develops computer processors and related technologies for business and consumer markets.

American Megatrends Inc. (AMI®)

AMI creates and manufactures key hardware and software solutions for the global computer marketplace, providing the highest quality and compatibility necessary to build today's advanced computing systems.

NXP Semiconductors N.V.

NXP Semiconductors N.V. is the world leader in secure connectivity solutions for embedded applications. NXP is driving innovation in the secure connected vehicle, end-to-end security and privacy and smart connected solutions markets.

NVIDIA Technologies

NVIDIA is a computing platform company, innovating at the intersection of graphics, HPC, and AI. The company specializes in the manufacture of graphics-processor technologies for workstations, desktop computers, and mobile devices.

Marvell® Networks

Lanner's Network Processing Appliance are built with performance-boosting and low-powered RISC processors from Marvell® for specified mission-critical applications like IPS, VPN and virus scanning.

Broadcom®

Broadcom® is a global innovator and leader in semiconductor solutions for wired and wireless communications. Lanner offer products with processors from Broadcom.

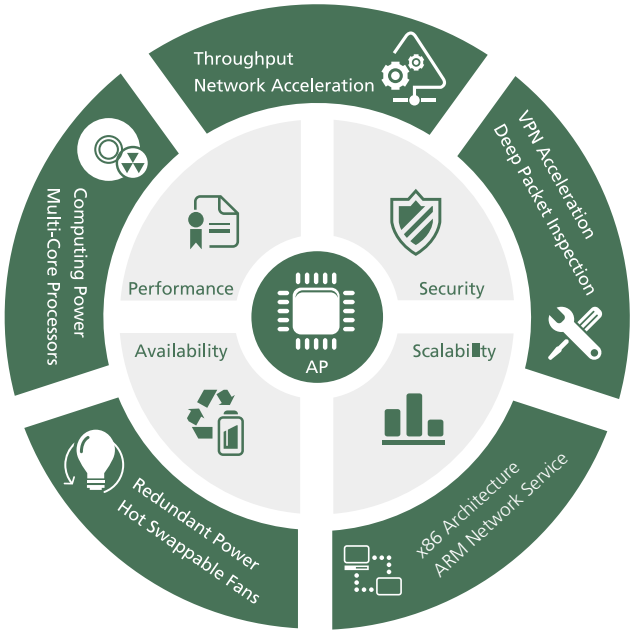
Infineon Technologies

Infineon Technologies AG, a Germany-based designer, developer and manufacturer of semiconductors and related system solutions, operates through four segments: Automotive, Industrial Power Control, Power Management & Multimarket, and Chip Card & Security.

Design and Manufacturing Services

Wide Customization Options

Lanner supplies customized hardware solutions for mission-critical applications with managed manufacturing process thanks to our in-house design and manufacturing services.



Advanced Networking Features

- Copper and fiber at 10/25/40/100 GbE
- Future-proof scalability with NIC modules
- Advanced LAN bypass
- Network throughput acceleration
- Hardware-assisted cryptographic engine
- Built-in hardware security
- Remote manageability
- Enhanced PoE power management

Best-In-Class Port Density

Lanner has engineered unprecedented port density for our rackmount network appliances. Utilizing our modular or blade technology, each platform can be configured to your optimal requirements.

Engineered for Reliable Operation

With redundant power sources, hot-swappable fans and LAN bypass, these network appliances will continue to support your network even when the unexpected occur.

The Latest and Fastest Processors

The latest Intel® Xeon®, Core™, Celeron®, Atom™ and AMD EPYC™ processors perform network security functions at optimal throughput while at low power. Lanner also designs with NXP® and Broadcom® processors to provide RISC based network platforms.

Electronic Engineering

Choose from an array of board and platform level components to create the perfect appliance or solution based on your application requirements. Lanner's strategic partnerships allow us to incorporate the latest technology in the industry to provide customers with a richer palette of options.

Mechanical Engineering

Lanner's engineers are well-versed in tackling the multitude of design issues faced on the board and mechanical level including ventilation, peripherals, and more. Rigorously tested, Lanner products can withstand a broad range of environmental parameters to guarantee product robustness in an array of applications.

Software Engineering

Implement the necessary BIOS or firmware into your platforms with the help of Lanner's software team.

Our software development expertise can create and customize the necessary BIOS, firmware, drivers and API level, to ensure seamless communication between hardware and application software.

Lanner's Complete Range of Network Appliances

Lanner possesses a wide range of network appliances including budget desktop firewalls with onboard processors, and also advanced hybrid appliances with multiple processors, expansion options, and reassuring redundancy features. Lanner offers both x86 and RISC appliances that can come with a range of acceleration cards and expansion modules to form the perfect appliance.

Prototyping

During the prototype stage, Lanner can help you with testing guidelines and BIOS tuning to maximize the performance of your appliance. Lanner has a wide range of standard appliances that can speed up your product development and bring your product to the market faster.

Product Identity Service

Take advantage of Lanner's product identify service. Lanner can customize the identity of your products, everything from industrial design of 2D and 3D faceplates to custom packaging and labeling. This ensures that your product accurately promotes your brand awareness and leaves a lasting impression with your customers.

Manufacturing

Lanner owns and operates its own in-house state-of-the-art SMT, DIP, assembly and testing facilities. By maintaining control of the entire manufacturing process, we ensure the integrity of your end product through our tight production procedures, integrated quality assurance programs and rigorous design quality.

Global Order Fulfillment and RMA

Worldwide Offices and RMA Centers

With our presence in various continents, we are able to serve our clients worldwide.

A Complete Service

After we have designed and manufactured your products, we install the required software and ship directly to your customers in your branded packages. Drop shipments can be arranged from our logistics centers worldwide.

Our service allows you to focus on your core competency of software development for the information security industry. We take care of the hardware design, manufacturing, logistics and service. That's our core competency.

Quality Control

Lanner's strict and ISO 9001-certified quality testing procedures have been adjusted to comply with standards. Also, as part of our green management plan, initiated early 2006, all Lanner products meet RoHS certification requirements.

Logistics

Successful logistics are reinforced by efficient procedures. Lanner clients' orders can be tracked through the production process by specific numbers allowing for routine project updates. Order traceability can guarantee consistency and quality.

Technical Support

Lanner provides full RMA service and technical support to fulfill customer service. For the systems built with Intel® platforms, we offer up to 7-year lifecycle support. Longer lifecycle support can also be arranged by jointly planned inventories.

NCA-1040
Intel Atom X6413E/N6415 CPU with
4 GbE RJ45 Ports

NCA-1515
Intel Denverton CPU with
6x GbE RJ45, 2x GbE SFP Ports

NCA-1516
Intel Denverton-R CPU
6 GbE RJ45 (w/ 2 PoE+ Option)
2 10GbE SFP+ Ports

NCA-1513
Intel Denverton CPU with
6 or 4 GbE RJ45 or
4 GbE RJ45 & 2 SFP Ports

NCA-1510
Intel Denverton CPU with
4 GbE RJ45, 2 GbE SFP Ports & Fanless Design

Low-footprint Intel CPU Engine

To addresses the demand for building efficient and secured network edge, Lanner adopts the latest generation of Intel® Atom™ and Celeron® processors to supply entry security gateway/UTM/SD-WAN/uCPE for SMBs or branch networks.

Intel QuickAssist Technology

This hardware-assisted security engine is not only designed to optimize the cryptographic and data compression applications, but also reserves processor cycles for critical application processing while improving overall system performance.

Intel Virtualization Technology (Intel VT)

Intel® VT provides hardware assist to the virtualization software, reducing its size, cost, and complexity; it is part of Lanner's value-added software packages intended for optimizing the performance, security, agility and manageability. Intel® Virtualization Technology such as VT-x, VT-d and SR-IOV are baked into Lanner appliances.

Wireless RF Connectivity

Lanner desktop appliances feature Wifi concurrent, dual LTE, expansion slots for Wi-Fi/5G/LTE/Wifi6 RF modules and external antenna for wireless network connectivity.

Fanless Design

System fans, considered one of the most error-prone components, are removed from appliances while at the same time allowing heat dissipation off the top of the corrugated aluminum enclosure.

Versatile Mounting Kits

For mounting flexibility, Lanner desktop appliances are compatible with wallmount or rackmount options for suitable installation in any environment setting.

Desktop Network Appliances

Feature	Description	NCA-1040	NCA-1513
Form Factor		Desktop	Desktop
Platform	Processor Options	Intel® Atom X6413E/N6415 (Elkhart Lake)	Intel® Atom® C3000 (Denverton)
	CPU Socket	onboard	onboard
	Chipset	SoC	SoC
	Security Acceleration	N/A	Intel® QuickAssist Technology (by SKU)
BIOS		AMI SPI Flash BIOS	AMI SPI Flash BIOS
System Memory	Technology	DDR4 3200 MHz SODIMM	DDR4 2133/1866 MHz ECC/Non-ECC SODIMM (By SKU)
	Max. Capacity	32 GB	16 GB
	Socket	1 x 260-pin SODIMM	1 x 260-pin SODIMM
Networking	Ethernet Ports	4 x GbE RJ45 Intel® i210	4 x GbE RJ45 Intel® SoC Integrated MAC 2 x GbE RJ45 Intel® i210AT or i211AT (by SKU 2x GbE SFP Intel® i210-IS(by SKU)
	Bypass	N/A	2 pair Gen3 (By SKU)
	NIC Module Slot	N/A	N/A
LOM	I/O Interface	N/A	N/A
	OPMA Slot	N/A	N/A
I/O Interface	Reset Button	1	1
	LED	Power/Status/Storage/M.2/Mini PCIe	Power/Status/Storage
	Power Button	1	1
	Console	1 x RJ-45	1 x RJ-45
	USB	1 x USB 3.0	2 x USB 2.0 or 2 x USB 3.0 (by SKU)
	LCD Module	N/A	N/A
	Display	1 x Display Port	N/A
	Power Input	1 x DC Jack With Lock	1 x DC Jack
Storage	HDD/SSD Support	N/A	1 x 2.5" Bay (Optional)
	Onboard Storage	1 x M.2 (SATA)	1 x EMMC 8GB
Expansion	PCIe	N/A	N/A
	mini-PCIe	1 x Mini-PCIe (PCIe/USB2.0) 1 x M.2 (PCIe/USB 3.0) 2x Nano SIM	1 x Mini-PCIe (PCIe/USB2.0), 1 x M.2 2280/2242 (SATA3.0), 1x M.2 3042 (USB3.0), 1 x Nano SIM for M.2
Miscellaneous	Watchdog	Yes	Yes
	Internal RTC with Li Battery	Yes	Yes
	TPM	N/A	Yes
Cooling	Processor	Passisve CPU heatsink	Passisve CPU heatsink
	System	Fanless	1 x Cooling Fan w/ Smart Fan
Environmental Parameters	Temperature	0~40°C Operating -40~70°C Non-Operating	0~40°C Operating -20~70°C Non-Operating
	Humidity (RH)	5~90% Operating 5~95% Non-Operating	5~90% Operating 5~95% Non-Operating
System Dimensions	(WxHxD)	183 x 32 x 168 mm	231 x 44 x 200 mm
	Weight	0.9 kg	1.2 kg
Package Dimensions	(WxHxD)		358 x 135 x 290 mm
	Weight		2.75 kg
Power	Type / Watts	60W Power Adapter	40W Power Adapter
	Input	AC 100~240V @50~60Hz, 12V/5A	AC 100~240V @50~60Hz, 1.7A
Approvals and Compliance		RoHS, CE/FCC Class B, UL, VCCI, UKCA	RoHS, CE/FCC Class B, UL

NCA-1510	NCA-1515	NCA-1516
Fanless Desktop	Desktop	Desktop
Intel® Atom™ C3000 (Denverton)	Intel® Atom® C3000 (Denverton)	Intel® Atom® C3000 (Denverton)
onboard	onboard	onboard
SoC	SoC	SoC
Intel QuickAssist Technology	Intel QuickAssist Technology	Intel QuickAssist Technology
AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
DDR4 2133 MHz ECC/Non-ECC SODIMM	DDR4 2400/2133/1866 MHz ECC/Non-ECC SODIMM (By SKU)	DDR4 2400/2133/1866 MHz ECC/Non-ECC SODIMM (By SKU)
16 GB	32 GB	64 GB
1 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM
4 x GbE RJ45 Intel® SoC Integrated MAC 2 x GbE RJ45 or SFP Intel® i210 (By SKU)	4 x GbE RJ45 Intel® SoC Integrated MAC 2 x GbE RJ45 Intel® i350 and (by SKU) 2 x GbE SFP Intel® i350 (by SKU)	4 x GbE RJ45 Intel® i350 2 x GbE RJ45 Marvell 88E1543 2 x SFP+ SoC Integrated MAC
1 pair Gen3 (By SKU)	1 pair Gen3 (By SKU)	N/A
N/A	N/A	N/A
N/A	1 x RJ45 (By SKU)	N/A
N/A	Yes	N/A
1	1	1
Power/Status/Storage	Power/Status/Storage	Power/Status/Storage
1	1	1
1 x Mini USB	1 x RJ-45	1 x RJ-45
2 x USB 2.0	2 x USB 2.0	2 x USB 3.0
N/A	N/A	N/A
N/A	N/A	N/A
1 x DC Jack	1 x DC Jack	2 x DC Jack (Optional 2nd DC Jack)
1 x 2.5" Bay (Optional)	1 x 2.5" Bay (Optional)	N/A
1 x EMMC 8GB	1 x EMMC 8GB	1 x EMMC 8GB (By Request)
N/A	N/A	N/A
1 x Mini-PCIe (PCIe) 1 x M.2 (USB2.0/PCIe) 1 x Nano SIM	2 x Mini-PCIe (PCIe/USB2.0) 1 x M.2 2242 B Key (USB3.0) 2 x Nano SIM for M.2	1 x Mini-PCIe (PCIe/USB2.0) 1x M.2 3052/3580 B Key (PCIe/USB 3.0) 1x M.2 3042 B Key (USB 3.0) 1x M.2 2242 B Key (SATA) 2 x Nano SIM
Yes	Yes	Yes
Yes	Yes	Yes
Yes	Yes	Yes
Passive CPU heatsink	Passive CPU Heatsink	Passive CPU Heatsink
Fanless	1 x Cooling Fan w/ Smart Fan	2 x Cooling Fans w/ Smart Fan or Fanless (By Request)
0~50°C Operating (SKU A/B/C) 0~40°C Operating (SKU D) -20~70°C Non-Operating	0~40°C Operating -20~70°C Non-Operating	0~40°C Operating -20~70°C Non-Operating
5~90% Operating 5~95% Non-Operating	5~90% Operating 5~95% Non-Operating	5~90% Operating 5~95% Non-Operating
231 x 44 x 200 mm	231 x 44 x 200 mm	231 x 44 x 200 mm
1.2 kg	1.2 kg	1.2 kg
325 x 305 x 120 mm	358 x 290 x 135 mm	358 x 290 x 135 mm
2.2 kg	2.75 kg	2.75 kg
36W or 60W Power Adapter (By SKU)	36W or 60W Power Adapter (By SKU)	60W Power Adapter
AC 100~240V @50~60 Hz	AC 100~240V @50~60 Hz	AC 100~240V @50~60 Hz
RoHS, CE/FCC Class B, UL	RoHS, CE/FCC Class A, UL	RoHS, CE/FCC Class B, UL

Security Package

Security Inside Out

Lanner can be counted on for offering hardware solutions built with the most advanced hardware-based and hardware-assisted security measures and enhancements. These added benefits and values include hardware security (i.e. TPM), security acceleration (i.e. Intel® QAT), BIOS security (i.e. BootGuard), Intel® SGX, ISO 27001:2013, secure BMC and more.

Security Acceleration

Intel QAT
Marvell Nitrox Security Processor
AMD Crypto Co-Processor
Mellanox Innova™ IPsec

Hardware Security

FIPS Compliant
Kensington Lock
Intrusion Detection
TPM 2.0

BIOS Security

BootGuard
Secure Boot
Secure Flash

Security Enhancement

Intel SGX
Intel SECL-DC
Intel SDO
AMD SME
AMD SEV

ISO 27001:2013

Certified
Information Security
Management

Secure BMC

Secure Access Control
Enhanced 2048-bit SSL

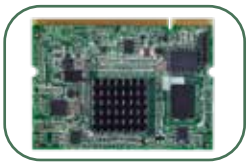
NCA-2510/NCA-2512
Intel® Denverton CPU
5 GbE RJ45 + 4 SFP+, 1 NIC Slot, 2 PSUs (NCA-2512)

NCA-5710
Intel® Skylake-SP/Cascade Lake-SP CPU
Onboard IPMI Chip, 4 10G SFP+, 4 NIC Slots

NCA-2513
Intel® Atom™ C3000 2~8 Cores (Denverton-R)
6x GbE RJ45 or 8x GbE RJ45 (By SKU)

NCA-6210
Intel® Skylake-SP/Cascade Lake-SP CPU
8 NIC Slots + 20 288-pin DIMM

• Support Intel Xeon/Core CPUs



• IPMI

• Redundant Power

• Modular Fans

Intel® Core™ and Xeon® CPU
Lanner rackmount appliances feature the latest server-grade Intel® Core™ and Xeon® CPUs optimized to offer high throughputs and function as next-gen firewalls deployed in the enterprise network and cloud infrastructures.

Scalable Modules and Cards
Scale the performance and throughputs up for your network appliances with over 20 different copper, fiber bypass Ethernet modules including 1/10/40/50/100GbE LAN options, and also the add-on accelerator cards providing high performance tunneling and encryption.

High Availability Design
To ensure the 24/7 non-stop network operation, Lanner appliances support high availability design including dual management ports, hot-swappable cooling fans and redundant power supplies.

Trusted Platform Module
Our appliances support Trusted Platform Module (TPM) that provides the integrated cryptographic keys and secure boot to protect the hardware from unauthorized accesses.

AMD EPYC™ 7000/3000 Series CPU
With the flexibility to choose from 8 to 32 cores, AMD EPYC™ enables you to deploy the right hardware platforms to meet your workload needs from virtualized infrastructure to large-scale big-data and analytics platforms and legacy line-of-business applications.

BMC Remote Manageability
Lanner provides SSL encrypted BMC add-on card and custom SDK to remotely configure, monitor, reboot and shut down your appliances.

Data Plane Development Kit (DPDK)
Lanner appliances support Intel DPDK that manages communication workload consolidation to accelerate network packet processing performance by 3 to 4 times.

Intel Virtualization Technology
Lanner appliances come with Intel® VT (VT-x, VT-d and SR-IOV) built in, providing hardware assist to the virtualization software, reducing its size, cost, and complexity and optimizing performance, security, agility and manageability.

Rackmount Network Appliances



Feature	Description	NCA-2510	NCA-2513	NCA-4025
Form Factor		1U 19" Rackmount	1U 19" Rackmount	1U 19" Rackmount
Platform	Processor Options	Intel® Atom™ C3000, 8~16 Cores (Denverton)	Intel® Atom™ C3000 2~8 Cores (Denverton-R)	Intel® Xeon® D2100 8/12/16 Cores
	CPU Socket	onboard	onboard	1 x FCBGA2518
	Chipset	SoC	SoC	N/A
	Security Acceleration	Intel® QuickAssist Technology	Intel® QuickAssist Technology	Intel® QuickAssist Technology (By SKU)
BIOS		AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
System Memory	Technology	DDR4 2400MHz ECC or non-ECC UDIMM	DDR4 2400MHz ECC or non-ECC UDIMM/ RDIMM	DDR4 2666MHz REG DIMM
	Max. Capacity	32GB	64GB	512GB
	Socket	4 x 288pin DIMM	2x 288-pin DIMM	4 x 288-pin DIMM
Networking	Ethernet Ports	1 x GbE RJ45 Intel® i210 4 x GbE RJ-45 Intel® i350-AM4 4 SFP+ Intel® Denverton Integrated (By SKU)	2 x GbE RJ45 Intel® i210 2 x GbE RJ45 Intel® i350-AM2 (By SKU) 4 x GbE RJ45 Intel® SoC Integrated MAC	8 x GbE RJ45 Intel® i350-AM4 4 x SFP+ Intel® SoC Integrated MAC
	Bypass	2 pairs Gen3 (By SKU)	2 pairs Gen3 (By SKU)	N/A
	NIC Module Slot	1	1	2
LOM	I/O Interface	1 x RJ45 (By SKU)	N/A	1 x LOM for IPMI (Optional)
	OPMA Slot	Yes (By SKU)	N/A	N/A
I/O Interface	Reset Button	1	1	1
	LED	Power/Status/Storage	Power/Status/Storage	Power/Status/Storage
	Power Button	1 x ATX Power switch	1 x ATX Power switch	1 x ATX Power switch
	Console	1 x RJ45	1 x RJ45	1 x RJ45
	USB	2 x USB 3.0	2 x USB 3.0 or 2.0 (By SKU)	2 x USB 2.0
	LCD Module	2x20 character LCM 4 x keypads	2x20 character LCM 4 x keypads	N/A
	Display	From OPMA slot (Optional)	N/A	N/A
	Power Input	AC power inlet on PSU	AC Power Inlet on PSU	AC Power Inlet on PSU
Storage	HDD/SSD Support	2 x 2.5" bays	2 x 2.5" bays	2 x 2.5" Internal
	Onboard Storage	1 x mSATA	1 x M.2	1 x M.2
Expansion	PCIe	1 x PCI-E*8 HH/HL (Optional)	1 x PCI-E*8 or *4 FH/HL (By SKU)	N/A
	mini-PCIe	N/A	Yes (By SKU)	N/A
Miscellaneous	Watchdog	Yes	Yes	Yes
	Internal RTC w/ Li Battery	Yes	Yes	Yes
	TPM	Yes (optional)	Yes	Yes (optional)
Cooling	Processor	Passive CPU heatsink	Passive CPU Heatsink	Passive CPU heatsink
	System	2 x cooling fans with smart fan	1 x Cooling Fan	4 x Swappable Smart Fans
Environmental Parameters	Temperature	0~40°C Operating -20~70°C Non-Operating	0~40°C Operating -20~70°C Non-Operating	0~40°C Operating -20~70°C Non-Operating
	Humidity (RH)	5~90% Operating 5~95% Non-Operating	5~90% Operating 5~95% Non-Operating	5~90% Operating 5~95% Non-Operating
System Dimensions	(WxDxH)	438 x 321 x 44 mm	438 x 321 x 44 mm	438 x 510 x 44 mm
	Weight	4.4 kg	4.4 kg	8.6 kg
Package Dimensions	(WxDxH)	540 x 500 x 230 mm	540 x 500 x 230 mm	739 x 582 x 215 mm
	Weight	8 kg	8 kg	15 kg
Power	Type / Watts	220W ATX Single PSU	150W ATX Single PSU	450W 1+1 Redundant PSU
	Input	AC 90~264V @47~63Hz	AC 90V~264V @47~63Hz	AC 110~240V @47~63 Hz
Approvals and Compliance		RoHS, CE/FCC Class A, UL	RoHS, CE/FCC Class A, UL	RoHs, CE/FCC Class A, UL

NCA-4020	NCA-4220	NCA-5220
1U 19" Rackmount	1U 19" Rackmount	1U 19" Rackmount
Intel® Xeon® D2100 4~16 Cores (Skylake-DE)	Intel® Core™ i7/i5/i3 or Pentium® or Celeron® (Coffee Lake)	Intel® Xeon® E or Core i3 or Pentium or Celeron Processor (Coffee Lake), Up to 6 Cores
1 x FCBGA2518	1 x LGA1151	1 x LGA1151
N/A	Intel® H310/Q370/C246	Intel® C246
Intel® QuickAssist Technology (By SKU)	N/A	N/A
AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
DDR4 2666MHz REG DIMM	DDR4 2666MHz ECC(By CPU for C246 only) or Non-ECC UDIMM	DDR4 2666 MHz ECC (By CPU) or Non-ECC UDIMM
128GB	32GB	128GB (32GB per DIMM)
4 x 288-pin DIMM	2 x 288pin DIMM	4 x 288-pin DIMM
10 x GbE RJ45 (4 x or 8 x PoE+, By SKU) 4 x 10G SFP+	8 x GbE RJ45 Intel® i210	2x GbE RJ45 for Dual MGMT Intel® i210 8x GbE RJ45 Intel® i210(SKU A) 4x GbE RJ45 Intel® i350-AM4 (SKU A) 4x SFP LAN Ports (By Project)
N/A	up to 3 pairs Gen3 (By SKU)	Up to 5 Pairs of Gen3 Bypass (By SKU)
N/A	1	2
1 x RJ45	-	1 x RJ45
IPMI Onboard	-	Yes
1	1	1
Power/Status/Storage	Power/Status/Storage	Power/Status/Storage
1 x ATX Power switch	1 x ATX Power switch	1 x ATX Power Switch
1 x RJ45	1 x RJ45	1 x RJ45
2 x USB 2.0	2 x USB 3.0	2 x USB 3.0
N/A	2x20 character LCM 4 x keypads	4 x Keypads, 16x2 Character LCD
Internal Pin Header	HDMI (Optional)	From OPMA Slot (Optional)
AC Power Inlet on PSU	AC power inlet on PSU	AC Power Inlet on PSU
2 x 2.5" Internal	2 x 2.5" bays	2 x 2.5" Bays
2 x M.2 (w/ LTE Support)	1 x M.2	1 x M.2 2242, B+M Key (Optional)
1 x PCI-E*8 FH/HL (Optional)	1 x PCI-E*8 (Default), 2 x PCI-E*4 (Optional)	2 x PCIe*4 FH/HL (Optional)
1 x Mini-PCIe (PCIe*1/USB2.0)	1 x Mini-PCIe	N/A
Yes	Yes	Yes
Yes	Yes	Yes
Yes (optional)	Yes (optional)	Yes (Optional)
Passive CPU heatsink	Passive CPU heatsink	Passive CPU Heatsink
3 x cooling fans with smart fan	2 x cooling fans with smart fan	2 x Cooling Fans with Smart Fan
0~40°C Operating -40~70°C Non-Operating	0~40°C Operating -20~70°C Non-Operating	0~40°C Operating -20~70°C Non-Operating
5~90% Operating 5~95% Non-Operating	5~90% Operating 5~95% Non-Operating	5~90% Operating 5~95% Non-Operating
438 x 468 x 44 mm	438 x 321 x 44 mm	438mm x 500mm x 44mm
7.9 kg	7.5 kg	7.1kg
739 x 582 x 215 mm	540 x 500 x 230 mm	739mm x 582mm x 215mm
13.6 kg	8.5 kg	13kg
600W 1+1 ATX Redundant PSUs	220W ATX Single PSU	300W 1+1 ATX Redundant PSUs
AC 100~240V @47~63Hz	AC 90~264V @47~63 Hz	AC 90V~264V @47~63Hz
RoHS, CE/FCC Class A, UL	RoHS, CE/FCC Class A, UL	RoHS, CE/FCC Class A, UL

Rackmount Network Appliances

Feature	Description	NCA-5230	NCA-5520	NCA-5530
Form Factor		1U 19" Rackmount	1U 19" Rackmount	1U 19" Rackmount
Platform	Processor Options	Intel® Xeon® i9/i7/i5/i3 Processors (Comet Lake-S)	Intel® Xeon® Scalable CPUs (Skylake-SP & Cascade Lake-SP)	3rd Gen Intel® Xeon® Scalable CPU (Ice Lake SP)
	CPU Socket	1 x LGA1200	1 x LGA3647	1 x LGA4189
	Chipset	Intel® W480E	Intel® C621/626	Intel® C621A/C627A
	Security Acceleration	N/A	Intel® QuickAssist Technology (By SKU)	Intel® QuickAssist Technology (By SKU)
BIOS		AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
System Memory	Technology	DDR4 2933 MHz ECC or Non-ECC UDIMM	DDR4 2666MHz REG DIMM	DDR4 3200MHz REG DIMM
	Max. Capacity	128GB	384GB	512GB
	Socket	4 x 288-pin DIMM	12 x 288pin DIMM	8 x 288pin DIMM
Networking	Ethernet Ports	8x GbE RJ45 8x SFP	4 x GbE RJ45 or 4 x 10G SFP+ Lewisburg Internal MAC	1 x GbE RJ45 Intel i210
	Bypass	4 Pairs (For RJ45 Copper Only)	Depends on NIC Module Specifications	Depends on NIC Module Specifications
	NIC Module Slot	2	4	4 or 2
LOM	I/O Interface	Optional	1 x RJ45 (Optional)	1 x RJ45 (Optional) *Share with ETH0
	OPMA Slot	Yes	N/A, IPMI Chip Onboard	Yes
I/O Interface	Reset Button	1	1	1
	LED	Power/Status/Storage	Power/Status/Storage	Power/Status/Storage
	Power Button	1 x ATX Power Switch	1 x ATX Power switch	1 x ATX Power switch
	Console	1 x RJ45	1 x RJ45, 1 x Mini USB	1 x RJ45
	USB	2 x USB 3.0	2 x USB 3.0	2 x USB 3.0
	LCD Module	4 x Keypads, 16x2 Character LCD	N/A (Optional)	N/A (Optional)
	Display	Optional	Internal Pin Header	1 x VGA, From OPMA Slot (Optional)
	Power Input	AC Power Inlet on PSU	AC power inlet on PSU	AC power inlet on PSU
Storage	HDD/SSD Support	2 x 2.5" Bays	2 x 2.5" Internal	2 x 2.5" Internal
	Onboard Storage	1 x M.2 (SATA) 2242/2280 B+M key	1 x mSATA	1 x M.2-2280 (SATA)
Expansion	PCIe	1 x PCI-E*8 FH/HL (Optional)	1 x PCI-E*16 FH/HL (Optional)	N/A (Default); 1x PCI-E*16 FH/HL (By Project)
	mini-PCIe / NVME	N/A	N/A	N/A
Miscellaneous	Watchdog	Yes	Yes	Yes
	Internal RTC with Li Battery	Yes	Yes	Yes
	TPM	Yes	Yes (Optional)	Yes (Optional TPM2.0)
Cooling	Processor	Passive CPU Heatsink	Passive CPU heatsink	Passive CPU heatsink
	System	4 x Cooling Fans with Smart Fan	4 x Individual Hot-swappable Cooling Fans w/ Smart Fan	5 x Or 4 x Individual Hot-swappable Cooling Fans w/ Smart Fan (By SKU)
Environmental Parameters	Temperature	0~40°C Operating -40~70°C Non-Operating	0~40°C Operating -20~70°C Non-Operating	0~40°C Operating -20~70°C Non-Operating
	Humidity (RH)	5~90% Operating 5~95% Non-Operating	5~90% Operating 5~95% Non-Operating	5~90% Operating 5~95% Non-Operating
System Dimensions	(WxDxH)	438 x 468 x 44 mm	438 x 650 x 43.5 mm	438 x 610 x 44mm
	Weight	7.6 kg	16.5 kg	10.5kg
Package Dimensions	(WxDxH)	739 x 582 x 215 mm	790 x 600 x 220 mm	739 x 215 x 582mm
	Weight	15.8 kg	18 kg	18.5kg
Power	Type / Watts	350W 1+1 ATX Redundant PSUs	TBD	550W 1+1 ATX Redundant PSUs
	Input	TBD	AC 100~240V @47~63Hz	AC 100~240V @47~63Hz
Approvals and Compliance		RoHS, CE/FCC Class A, UKCA, UL	TBD	RoHS, CE, FCC Class A, UL

NCA-5710	NCA-6210	NCA-6520
1U 19" Rackmount	2U 19" Rackmount	2U 19" Rackmount
Intel® Xeon® Processor Scalable Family (Skylake-SP/Cascade Lake-SP)	Intel® Xeon® Scalable CPUs (Skylake-SP & Cascade Lake-SP)	3rd Gen Intel® Xeon® Scalable CPU (Ice Lake SP)
2 x LGA3647	2 x LGA3647	2 x LGA4189
Intel® C621/627	Intel® C621/627	Intel® C627A
Intel® QuickAssist Technology (By SKU)	Intel® QuickAssist Technology (By SKU)	Intel® QuickAssist Technology
AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
DDR4 2666MHz REG DIMM	DDR4 2666MHz REG DIMM	DDR4 3200 MHz R-DIMM
384GB	640GB	1536GB
12 x 288pin DIMM	20 x 288pin DIMM	24 x 288-pin DIMM
4 x 10G SFP+ Lewisburg Internal MAC	1 or 2 x GbE RJ45 Intel® i210 (By SKU) 2 x 10G SFP+ Lewisburg Internal MAC (By SKU)	2 x GbE RJ45 Intel® i350-AM2
Depends on NIC Module Specifications	Depends on NIC Module Specifications	Depends on NIC Module Specifications
4	8	8
1 x RJ45 (Optional) *Share with ETH0	1 x RJ45 (By SKU)	1 x RJ45
IPMI Chip Onboard (SKU B & C)	IPMI Onboard (SKU C & D)	IPMI Onboard
1	1	1
Power/Status/Storage	Power/Status/Storage	Power/Status/Storage
1 x ATX Power switch	1 x ATX Power switch	1 x ATX Power switch
1 x RJ45, 1 x Mini USB	1 x RJ45, 1 x Mini USB (By SKU)	1 x RJ45
2 x USB 3.0	2 x USB 3.0	2 x USB 3.0
N/A (Optional)	N/A (Optional)	N/A (Optional)
Internal Pin Header	1 x VGA (Optional)	1 x VGA (Internal Pin Header)
AC power inlet on PSU	AC power inlet on PSU	AC power inlet on PSU
2 x 2.5" Internal	2 x 3.5" Swappable (with Support for 2 x 2.5")	2x 3.5" or 2.5" Swappable
1 x M.2	1 x mSATA (M.2 By Project)	2x M.2 (NVME); 1x M.2 (SATA)
1 x PCI-E*16 FH/HL (Optional)	1 x PCI-E*16 FH/HL (Optional)	SKU A: (Default) N/A 1x PCIe x16 HH/FL & 1x PCIe x16 HH/HL (Optional) SKU B: (Default) N/A 2x PCIe x16 FH/FL (Optional)
N/A	N/A	N/A
Yes	Yes	Yes
Yes	Yes	Yes
Yes (Optional)	Yes (Optional)	TPM2.0 (Optional)
Passive CPU heatsink	Passive CPU heatsink	Passive CPU heatsink
6 x Individual Hot-swappable cooling fans with smart fan	4 x Individual Hot-swappable cooling fan with smart fan	4 x Individual Hot-swappable cooling fan with smart fan
0~40°C Operating -20~70°C Non-Operating	0~40°C Operating -20~70°C Non-Operating	0~40°C Operating -20~70°C Non-Operating
5~90% Operating 5~95% Non-Operating	5~90% Operating 5~95% Non-Operating	5~90% Operating 5~95% Non-Operating
438 x 650 x 44 mm	438 x 600 x 88 mm	438 x 720 x 88mm
12 kg	24 kg	19.3kg
841 x 588 x 215 mm	935 x 588 x 258 mm	588 x 997 x 250mm
19 kg	26 kg	32 kg
850W 1+1 ATX Redundant PSUs	850W 1+1 ATX Redundant PSUs	850W 1+1 ATX Redundant PSUs
AC 100~240V @47~63Hz	AC 100~240V @47~63Hz AC 90~264V @47~63Hz	AC 100~240V @47~63Hz
RoHS, CE/FCC Class A, UL	RoHS/RoHS, CE, FCC Class A, UL	RoHS/RoHS, CE, FCC Class A, UL

Rackmount Network Appliances

Feature	Description	NCA-4112	NCA-5310	NCA-6110
Form Factor		1U 19" Rackmount	1U 19" Rackmount	2U 19" Rackmount
Platform	Processor Options	AMD EPYC™ 3000 Series (4~8 Cores)	AMD 3rd Gen EPYC™ Processor Family (Codenamed Milan)	AMD EPYC™ 7000 Series (Up to 32C64T)
	CPU Socket	SP4r2	SP3	2 x SP3r1
	Chipset	SoC	N/A	N/A
	Security Acceleration	10Gbps Encryption + 10Gbps Decryption	40Gbps Encryption + 40Gbps Decryption	40Gbps Encryption + 40Gbps Decryption
BIOS		AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
System Memory	Technology	DDR4 2666 MHz ECC/U/R DIMM	DDR4 3200MHz ECC REG DIMM	DDR4 3200MHz ECC REG DIMM
	Max. Capacity	128GB	512GB	1024GB
	Socket	4 x 288-pin DIMM	8 x 288-pin DIMM	16 x 288-pin DIMM
Networking	Ethernet Ports	8 x GbE RJ45 Intel® i350-AM4 2 x 10G SFP+ (By SKU)	1 x GbE RJ45 Intel® i210	2 x GbE RJ45 Intel® i210
	Bypass	3 x Pairs of Gen3	N/A	N/A
	NIC Module Slot	1	4	8
LOM	I/O Interface	1 x RJ45	1 x RJ45	1 x RJ45
	OPMA Slot	Yes	Yes	Yes
I/O Interface	Reset Button	1	1	1
	LED	Power/Status/Storage	Power/Status/Storage	Power/Status/Storage
	Power Button	1 x ATX Power Switch	1 x ATX Power Switch	1 x ATX Power Switch
	Console	1 x RJ45	1 x RJ45	1 x RJ45
	USB	2 x USB 3.0	2 x USB 3.0	2 x USB 2.0
	LCD Module	1 x LCM, 4 x Keypads	N/A	N/A
	Display	From OPMA Slot for VGA (Optional)	1 x VGA (Optional)	1 x VGA (Optional)
	Power Input	AC Power Inlet on PSU	AC Power Inlet on PSU	AC Power Inlet on PSU
Storage	HDD/SSD Support	2 x 2.5" Swappable Bays	2 x 2.5" Swappable Bays	SKU A: 4 x 2.5" or 3.5" SKU B: 2 x 2.5" or 3.5"
	Onboard Storage	1 x 2242 M.2	1 x 22110/2280 M.2 Slot	1 x mSATA
Expansion	PCIe	N/A	1 x PCIe*8 FHHL	2x PCIe*8 FHHL or 1x PCIe*16 FHHL
	mini-PCIe / NVME	1 x Mini-PCIe	N/A	N/A / Max. 1TB
Miscellaneous	Watchdog	Yes	Yes	Yes
	Internal RTC with Li Battery	Yes	Yes	Yes
	TPM	TPM 2.0 (Optional)	Yes (Optional)	Yes (Optional)
Cooling	Processor	Passive CPU Heatsink	Passive CPU Heatsink	Passive CPU Heatsink
	System	2 x Cooling Fans w/ Smart Fan	5 x Individual Hot-swappable Cooling Fans	4 x Individual Hot-swappable Cooling Fans
Environmental Parameters	Temperature	0~40°C Operating -20~70°C Non-Operating	0~40°C Operating -20~70°C Non-Operating	0~40°C Operating -20~70°C Non-Operating
	Humidity (RH)	5~90% Operating 5~95% Non-Operating	5~90% Operating 5~95% Non-Operating	5~90% Operating 5~95% Non-Operating
System Dimensions	(WxDxH)	438 x 431 x 44 mm	438 x 610 x 44 mm	438 x 647 x 88 mm
	Weight	8.6 kg	10.6 kg	24 kg
Package Dimensions	(WxDxH)	582 x 548 x 182 mm	739 x 582 x 215 mm	825 x 600 x 270 mm
	Weight	13 kg	15 kg	33 kg
Power	Type / Watts	300W Redundant PSUs	550W 1+1 ATX Redundant PSUs	850W 1+1 ATX Redundant PSUs
	Input	100~240VAC @50~60Hz, 5~3A	AC 100V~240V @47~63Hz	AC 100V~240V @47~63Hz
Approvals and Compliance		RoHS, CE, FCC, UL	RoHS, CE, FCC, UL	RoHS, CE, FCC, UL

Enhance the performance and bandwidth of your network appliances with Lanner's new swappable network modules. These modules enable higher packet processing for network appliances in applications such as DPI, IPS/IDS and WAN optimization.

Model Name	Ports	Chipset	Bypass
GbE RJ45 Modules			
NCS2-IGM806A	8	i350-AM4	4 Pairs Gen3
GbE SFP Modules			
NCS2-ISM405A	4	i350-AM4	Fiber Bypass
NCS2-ISM802A	8	i350-AM4	N/A
10G RJ45 Modules			
NCS2-ITM401	4	XL710-BM1	N/A
10G Fiber Modules			
NCS2-IXM407	4	XL710-AM2	N/A
NCS2-IXM415	4	E810-AM1	N/A
NCS2-IXM803	8	E810-AM2	N/A
25G Modules			
NCS2-IVM201	2	XXV710-AM2	N/A
40G Modules			
NCS2-IQM201	2	XL710-BM2	N/A
100G Modules			
N2S-IHM203	2	E810-CAM2	N/A
NCS2-IHM204A/B	2/1	E810-CAM2/1	N/A
N2S-MHM203	2	ConnectX-6	N/A
N2S-MHM202A	2	ConnectX-5 EN	N/A

Processor and Performance

Choose from a wide selection of network modules powered by Intel's latest CPU/chipset technologies, which include Intel® E810/XL710, XXV710, Mellanox® ConnectX® series multi-host Ethernet controller and more.

Wide Compatibility and Scalability

Lanner offers wide compatibility and scalability with our custom modular design. Our modules are certified with endurance and compatibility tests and are compatible with our existing and future network appliances.

Module Customizations

Choose from 20+ Ethernet network modules, including RJ-45, fiber, bypass and transmission rates from 1GbE, 10GbE, 25GbE, 40GbE to even 100GbE. Lanner also has PCI-E expansion modules for data storage, Wi-Fi connectivity, video transcoding and more.

Time to Market

Aiming to accelerate your time-to-market development, Lanner customizes our standard models based on your specific, mission-critical applications.

Expandable Modular Design

Design and customize your appliances for today's dynamic network environments with the all-new F.A.S.T. Solutions. These **F**lexible, **A**daptable, **S**calable and **T**ransformable multi-purpose solutions are compatible with Lanner appliances and are developed for unleashing, expanding and accelerating networking appliances' connectivity, storage, video transcoding and Open Compute capabilities.

Connectivity Modules

Lanner offer wide selections of NIC modules that support 1/10/25/40/100/200/400GbE with copper and fiber interface, bypass and fiber bypass, RF/Wifi/4G/LTE connectivity, as well as PoE ready design.

100Gbps NIC Module - NCS2-IHM204/ N2S-MHM202A

- Intel E810 Series/Mellanox ConnectX®-5 EN Ethernet Controller
- 2 x 100GbE QSFP28/Fiber Ports

4-port PoE+ NIC Module - NCS2-POEIG402A / NCS2-POEIG801A (Power over Ethernet) module

- Intel Ethernet Controller
- IEEE 802.3af/at Compliant
- 4/8 x PoE+ RJ45 Ports, 30W Per Module

RF Carrier Module - NCS2-M201

- Support For Wifi/5G Cards Or Lanner PGN-300/600 LTE Modules
- 1 x Gen3 PCIe*8 Golden Finger
- Integrated LED On Cage

RF Carrier Module - NCS2-MINIPCIE02

- 1 x MPCIE slot (PCIE)
- 1 x MPCIE slot (PCIE/USB)
- 1 x m.2 B key (USB)
- 2 x SIM card readers
- 4 x Antennas

Swappable 4G/LTE Radio Modem Module - PGN-600/PGN-300

- Sierra Wireless EM7511/EM7455
- CAT-12/ CAT-6
- AT&T/Verizon Pre-certified
- 2x SIM, 2x 4G LTE Antenna
- PTCRB/FirstNet™/CBRS Pre-certified

Storage Modules

The new swappable storage modules support mainstream standard storage devices, including 2.5" SSD/HDD, 3.5" HDD, and future-proof NVMe SSD drive.

NCS2-25TRAY201
- Single NCS2 Form Factor
- 2x 2.5" Swappable Tray

N3S-35TRAY201
- Tri NCS2 Form Factor
- 2x 3.5" Swappable Tray

NCS2-NVMEM2201
- NCS2 Form Factor
- 2x M.2 Connector (Length 2280 & 22110)

PCI-Express Expansion Modules

To meet the diverse requirement in open-compute projects, Lanner offer PCIe expansion modules compatible with acceleration cards for GPU, network performance and flow processing.

PCIe Carrier Module - N2S-PCIE16X12A
- Double NCS2 NIC Module Slot
- Support for 1 x PCIe x16 Full Height, Half-length Card, such as GPU Card, Storage, Network Acceleration Card or Flow Processing Card

PCIe Carrier Module - N2S-PCIE8X2A
- Double NCS2 NIC Module Slot
- Support for 2 x PCIe x8 Full Height, Half-length Card, such as GPU Card, Storage, Network Acceleration Card or Flow Processing Card

Video Transcoding Modules

Lanner provides front-facing, easily swappable video transcoding modules that transport high quality streaming and bandwidth-hungry video content.

Video Transcoding NIC With Intel® Tiger Lake U - NCS2-VT04
- Video transport NIC module for Lanner network appliances
- Intel® Tiger Lake U CPU (i7/Celeron)
- Max. 32GB DDR4 3200 MHz non-ECC UDIMM
- 10bit HEVC Codec

OT Security

Rugged Security Appliance

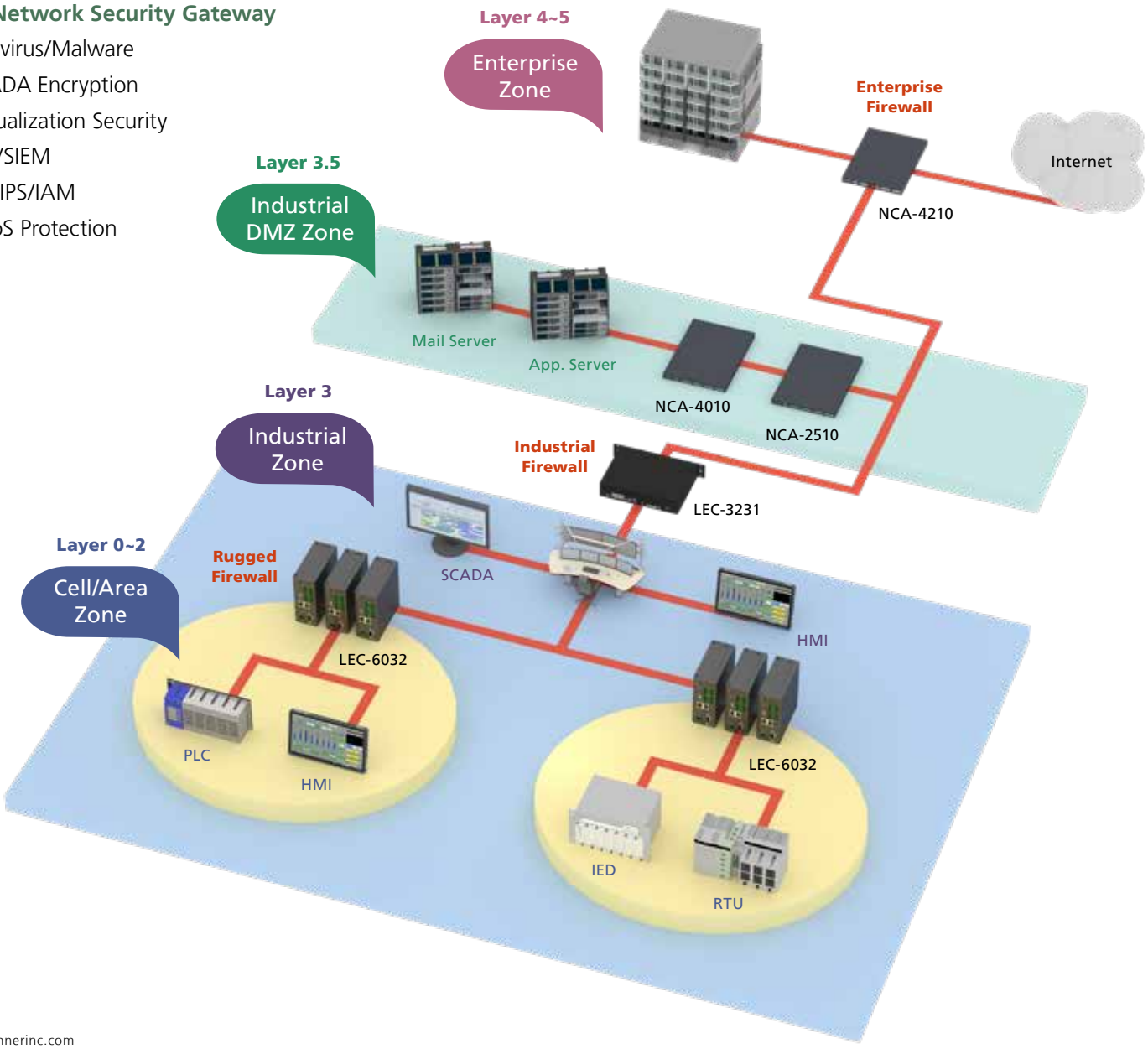
Lanner ICS / ISD / OT Security Solutions

To fully protect critical infrastructures from advanced cyber malwares, it is necessary to establish multi-layer protections covering both IT and OT networks. In a common digitalized setting for critical infrastructures, OT controls and manages Industrial Zone (Layer 0~3) like instrumentation bus, controller LAN and supervisory HMI and SCADA systems, whereas the IT monitors and authenticates Enterprise Zone (Layer 4~5) like web server, email server, FTP server and enterprise servers. In a more advanced model, an Industrial DMZ Zone (Layer 3.5) is established as an additional layer of protection towards externally interfaced services.

Lanner, the leading hardware solution providers for network security, offers wide-range, customizable hardware platforms designed to protect the communication protocols in both IT and OT domains for critical infrastructures including energy, power, oil and gas industries.

IIoT Network Security Gateway

- Antivirus/Malware
- SCADA Encryption
- Virtualization Security
- DLP/SIEM
- IDS/IPS/IAM
- DDoS Protection



ICS / OT Security Appliances

OT Security Appliance

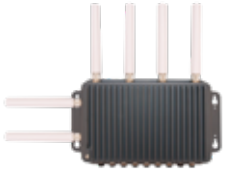
IEC-61850 OT Security Appliance

IEC-61850 OT Security Appliance

Model Name		LEC-6032	LEC-6041	LEC-3340
Processor System	CPU	Intel® Atom™ E3845	Intel® Atom™ x7-E3950 or x5-E3930	Intel® Xeon® E3-1505L V6 or Core i5-7442EQ CPU
	Frequency	1.91 Ghz	Atom x5-E3930: 1.3 GHz, Atom x7-E3950: 1.6 GHz	2.2 GHz or 2.9 GHz
	Core Number	4C	Atom x5-E3930: 2, Atom x7-E3950: 4	Intel Xeon E3-1505L V6 / Core i5-7442EQ: Quad core
	BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
	Chipset	SoC	SoC	Intel® CM238
Fanless		Yes	Yes	Yes
Memory	Technology	DDR3L 1333 MHz	DDR3L, 1866 MHz	DDR4 ECC
	Max. Capacity	8GB	8GB	Up to 64 GB
	Socket	1x 204-pin SODIMM	1x 204-pin SODIMM	2 x 260-pin SODIMM
Graphic	Controller	Intel® HD Graphics	Intel HD 505 Graphics	Intel® Xeon® E3-1505L V6: HD Graphics P530 Core i5-7442EQ CPU: HD Graphics P630
	Interface	Internal pin header	1 x HDMI	DP, DVI-D
Ethernet	Controller	Intel® i210	Intel® i210	Intel® i210
	Speed	10/100/1000Mbps	RJ45: 10/100/1000Mbps, SFP: 1 Gbps	Either 1000 Mbps or 10/100 Mbps
	Interface	6032B: 5 x GbE RJ-45, 2 pairs Bypass 6032C: 5 x GbE RJ-45, 1 pair Bypass, 2 x SFP GbE ports 6032D: 5 x GbE RJ-45, 1 pair Bypass 6032F: 3 x GbE RJ-45, 1 pair Bypass, 4 x SFP GbE ports	5 x GbE RJ45, 1 pair LAN Bypass 2 x GbE SFP ports	4 x 1000Base-T GbE RJ45 ports
	Magnetic Isolation Protection	1.5KV magnetic isolation protection	1.5KV magnetic isolation protection	1.5KV magnetic isolation protection
Storage	Type	-	m-SATA	m-SATA
	Installation	-	1 x mini mSATA socket	1 x mSATA socket
	Type	SATA II	SATA II	SATA II
	Installation	1x 2.5" Drive Bay	1x 2.5" Drive Bay (Optional)	2 x 2.5" Swappable HDD/SSD drive bay support RAID0,1
I/O	Serial Port	1x DB9 for RS-232 (6032D only), Internal pin-header x 1	2x RS-232, DB9 male	2 x DB9 Male (COM1/COM2) with isolation supports software selectable RS-232/422/485
	ESD Protection	15KV ESD Protection	15KV ESD protection	15KV ESD Protection
	Isolation Protection	2KV Digital Isolation	2KV Digital Isolation	2KV Digital Isolation
	Digital I/O	-	-	-
	USB 2.0	1x Type A	2x Type A	-
	USB 3.0	1x Type A	-	5 x type A
	Power On/Off/Reset Button	- / 1x Reset	- / 1x Reset	- / 1x Reset
	LED	Storage, RUN, PWR, LAN LEC-6032 C/F: SFP	PWR, Storage, Run(User defined), 5 x LAN, 2 x SFP	2x Power on for LED (Power1/Power2) in Green 1x Storage access LED for mSATA/HDD1/HDD2 in Green 4x double stack LED for Ethernet active in Yellow; Speed LED 100M in Green; Speed LED 1G: Yellow 2x Double Stack LED for COM1/COM2 TX in Yellow; RX Signal Access in Green 1x Failure LED(User Programmable)in multi-color Red/ Green
Expansion Interface	PCIe/Mini-PCIe	-	1x mini-PCIe with 1 SIM card for 4G LTE module (USB & PCIe signal)	1 x PCIe x16, 3 x PCIe x4 slots
Watchdog Timer		Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable
Power	Power Supply Voltage	12-36Vdc	20-54 Vdc	2x 16.6Vdc or 100~240Vac
	Connector	6-pin Phoenix Contact Connector	6-Pin Terminal Block	3-Pin Terminal Block
	Power Consumption (Idle)	10.62W	SKU A/20V:12.8W, SKU A/54V12.8W, SKU B/20V:13.9W, SKU B/54V: 14.4W	16.3W
	Power Consumption (Full Load)	14.63W	SKU A/20V: 14.8W, SKU A/54V:14.4W SKU B/20V:18.4W, SKU B/54V:19.3W	28.7W
Environment	Operating Temperature	-40~70°C (-40~176°F)	-40~70°C (-40~176°F)	-40°C~70°C (-40-158°F)
	Storage Temperature	-40~85°C (-40~185°F)	-40~85°C (-40~185°F)	-40~85°C (-40~185°F)
	Relative Humidity	5%~95%, Non-condensing	5%~95%, Non-condensing	5%~95%, Non-condensing
Mechanical	Dimension (W x H x D)	78 x 146 x 127 mm (3.07"x 5.75"x 5.00")	53.5 x 166 x160 mm (2.11"x 6.54"x 6.30")	438 x 131.8 x 300.1 mm
	Construction	Aluminum	Aluminum + SGCC	Aluminum + Steel
	Weight	2.2 Kg	1.6 Kg	8.5 kg
	Mounting	DIN rail, Wallmount	DIN rail, Wallmount	Rackmount
Driver Support	Microsoft Windows	Windoows 7 Embedded	Windows 10 PRO	Windows 10 PRO
	Linux	Kernel 3.X	Kernel 4.X	Kernel 4.X
Certification	EMC	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A
Compliance		RoHS	RoHS, IEC 61850-3	RoHS, IEC 61850-3
Ordering Information		LEC-6032B/C/D/F	LEC-6041A/B	LEC-3340A/B/C/D

ICS / OT Security Appliances

Rugged Wireless Gateway

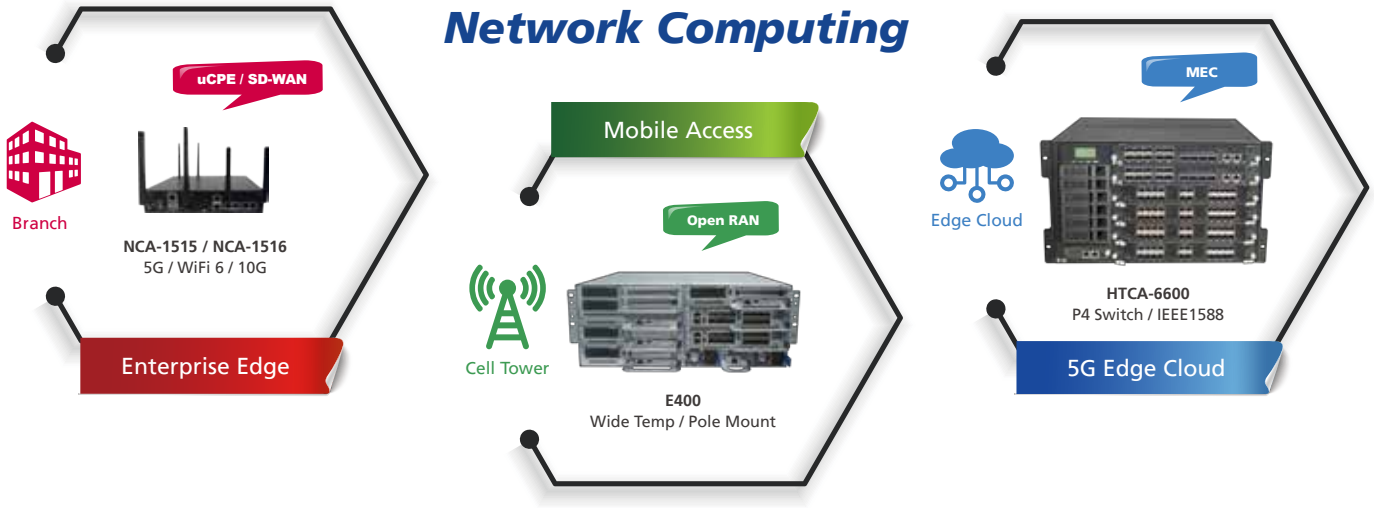


IP67 Wireless Gateway

Rail Cyber Security Appliance

Model Name		NCR-1510	ISD-O370 NEW	ICS-R372 NEW
Processor System	CPU	Intel® Denverton C3308/C3508/C3708	Intel® Denverton C3708/C3808	Intel Apollo Lake X7-E3950
	Frequency	1.6 ~ 1.7 GHz	1.7~2.0 GHz	2.0 GHz
	Core Number	2~8 Cores	8~12 Cores	4 Cores
	BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
	Chipset	SoC	SoC	SoC
Fanless		Yes	Yes	Yes
Memory	Technology	DDR4 2400MHz ECC/Non-ECC	DDR4 up to 2133 MT/s ECC SODIMM	LPDDR4
	Max. Capacity	SKU A/D: 32GB, SKU B/C/E/F:64GB	64 GB, Deafult ECC RAM 16GB x1	Up to 8GB **(Factory default: 8GB pre-installed)**
	Socket	SKU A/D:1x 260-pin SODIMM, SKU B/C/E/F:2x 260-pin SODIMM	2x 260-pin SODIMM	1 x 260-pin SODIMM
Graphic	Controller	N/A	N/A	**Intel integrated HD Graphics 505**
	Interface	N/A	N/A	2 x HDMI
Ethernet	Controller	4 x GbE RJ45 Intel® SoC Integrated MAC 2 x SFP Intel® i210 (By SKU) or 2 x GbE RJ45 Intel i210 (By SKU)	All Ethernet ports are supported with SR-IOV, 4x GbE LAN, 2x GbE POE+ by M12 X-coded 8pin Female connector with isolation 1.5KVDC	Intel® i210-IT
	Speed	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps
	Interface	6 x GbE RJ45 or 4 x RJ45 & 2 x GbE SFP (By SKU)	4x GbE LAN, 2x GbE POE+ by M12 X-coded 8pin Female connector	Up to 6 x Ethernet ports with M12 X-coded connectors
	Bypass	1 pair Gen3	N/A	N/A
Storage	Type	SATA	SATA	m-SATA, SDXC
	Installation	1 x 2.5" Bay (Optional)	N/A	**1 x mSATA socket, 1 x SDXC socket**
	Type	M.2	M.2	SATA II
	Installation	SKU A/B/C: 1x M.2 B key 3042 for LTE, 2242 SSD (signal: USB3.0, SATA)	1x M.2 2242 B key	**Internal 2.5" drive bay x 1**
I/O	Serial Port	N/A	1 x RS232/485 by M12 X-coded 8pin Female connector with isolation 1.5KVDC	**1 x RS232 (console)**
	ESD Protection	N/A	1.5KVDC	-
	Isolation Protection	N/A	Yes	-
	Digital I/O	N/A	N/A	-
	USB 2.0	1 x Mini USB for console	1 x USB 2.0 by M12 A-coded 8pin Male connector	4 x type A
	USB 3.0	2 x USB 3.0 (By SKU)	N/A	-
	Power On/Off/Reset Button	1x DC Jack, 1x Reset Button	N/A	
	LED	Power/Status/Storage	N/A	TBD
Expansion Interface	PCIe/Mini-PCIe	SKU A/B/C: 1x M.2 B Key 3042 For LTE, 2242 SSD (Signal: USB3.0, SATA) With Nano-SIM; 2x Mini-PCIe for Wi-Fi,LTE (Signal: USB2.0,PCIe) With Nano-SIM	1x M.2 304(5)2 B Key socket for 5G 1x M.2 2230 E Key socket for WiFi 6 Mini-SIM & 1x eSIM (reserved)	M.2 3042 B Key x2
Watchdog Timer		Yes	Yes	Fintek F81866AD-I integrated watchdog timer 1~255 level
Power	Power Supply Voltage	9~54 VDC	DC-IN, Up to 130W, Rated 24-36Vdc (range 9-50Vdc)	Power input DC 9~50V / 43~154V
	Connector	2-pin terminal block	M12 K-coded 5pin Male connector	M12 K-coded
	Power Consumption (Idle)	TBD	TBD	TBD
	Power Consumption (Full Load)	TBD	TBD	TBD
Environment	Operating Temperature	-40~70°C Operating (SKU A/B) -40~60°C Operating (SKU C)	-40~70°C Operating (SKU D & F) -40~60°C Operating (SKU C & E)	-40°C~70°C (-40-158°F)
	Storage Temperature	-40~85°C (-40~185°F)	-40~85°C Ambient storage	-40~85°C (-40~185°F)
	Relative Humidity	5~90% Operating 5~95%, Non-Operating	5~90% Operating 5~95% Non-Operating	5%~95%, Non-condensing
Mechanical	Dimension (W x H x D)	310 x 44 x 240 mm (12.20" x 1.73" x 9.45")	370mm x 210mm x 83mm	272.4 x 114.3 x 228 mm (10.72" x 4.5" x 8.97")
	Construction	Aluminum + Steel	Aluminum + Steel	Aluminum + Steel
	Weight	3 kg	4.6 kg	7 kg
	Mounting	Wallmount	Wallmount	Wallmount
Driver Support	Microsoft Windows	Windows: Win10 IOT	N/A	Windows: Win10 IOT
	Linux	Linux: Redhat Enterprise 5, Fedora 14. Linux Kernel 2.6.18 or later	Linux Kernel	Linux: Redhat Enterprise 5, Fedora 14. Linux Kernel 2.6.18 or later
Certification	EMC	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A
Compliance		RoHS	UL 62368-1, CB, IP67, MIL-STD-810G	E13, EN50155, EN50121-3-2, EN50121-4, EN50125-3, EN45545-2, MIL-STD-810G anti-vibration & shock
Ordering Information		NCR-1510 A/B/C/D/E/F	ISD-O370 C/D/E/F	ICS-R372

Driving 5G Edge Network Computing



With the advances in networking technologies like SDN and NFV, communication service providers and carriers benefit from the flexibility and the agility to evolve their new services. Designed for next generation network virtualization, Lanner provides carrier-grade, NEBS-compliant communication platforms featuring extreme computing power, modular I/O flexibility, WiFi/LTE connectivity and full redundancy design. These high-availability SDN/NFV ready platforms are ideal to work as virtual CPE, virtual Router, NFVi appliance and MEC platforms for today's telecom environments.

SD-WAN uCPE

uCPE devices for SD-Security, SD-WAN and other VNF in access networks

Hyper Converged Infrastructure

HCI-ready platforms with multi-node compute, switching and storage in one single appliance

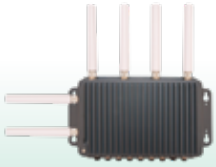
Mobile Edge Computing

MEC servers deployed at edge data center for ultra-low latency, high bandwidth content delivery

5G Edge Open RAN

NEBS compliant network platforms for virtualized cloud-based radio access networking at CORD

Outdoor Edge Computing



5G/-WiFi 6 ready platforms for telco central offices, data centers in core networks

vRouter vBNG

Customizable and scalable whitebox hardware platforms for vRouter and vBNG

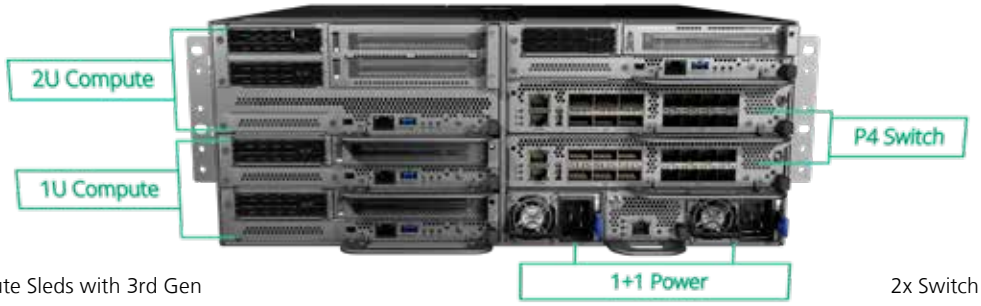
HTCA-E400

Consolidated Edge Server for Open RAN

Powered by 5x Intel Xeon Scalable Processors, Lanner HTCA-E400 is a consolidated hyper-converged edge server specifically designed for OpenRAN infrastructure. With support of Intel Tofino P4 and FPGA/GPU acceleration, the scalable HTCA-E400 edge compute platform features programmable, intelligent switching capability that can offload open architecture CPU and is cost-effective in the long term through supporting protocol-independent and multi-Tbps networking performance without being compromised by hardware bottleneck.

PCIE, Storage and
OCP NIC 3.0 Card Expansion

hort-Depth Chassis Designed for
5G Distributed Edge



5x Compute Sleds with 3rd Gen
Intel Xeon Scalable Processors

2x Switch Sleds with
Intel Tofino P4 Programmable ASIC

Consolidated Edge Server for
Next-Gen Open RAN

Compute and Switch Sleds

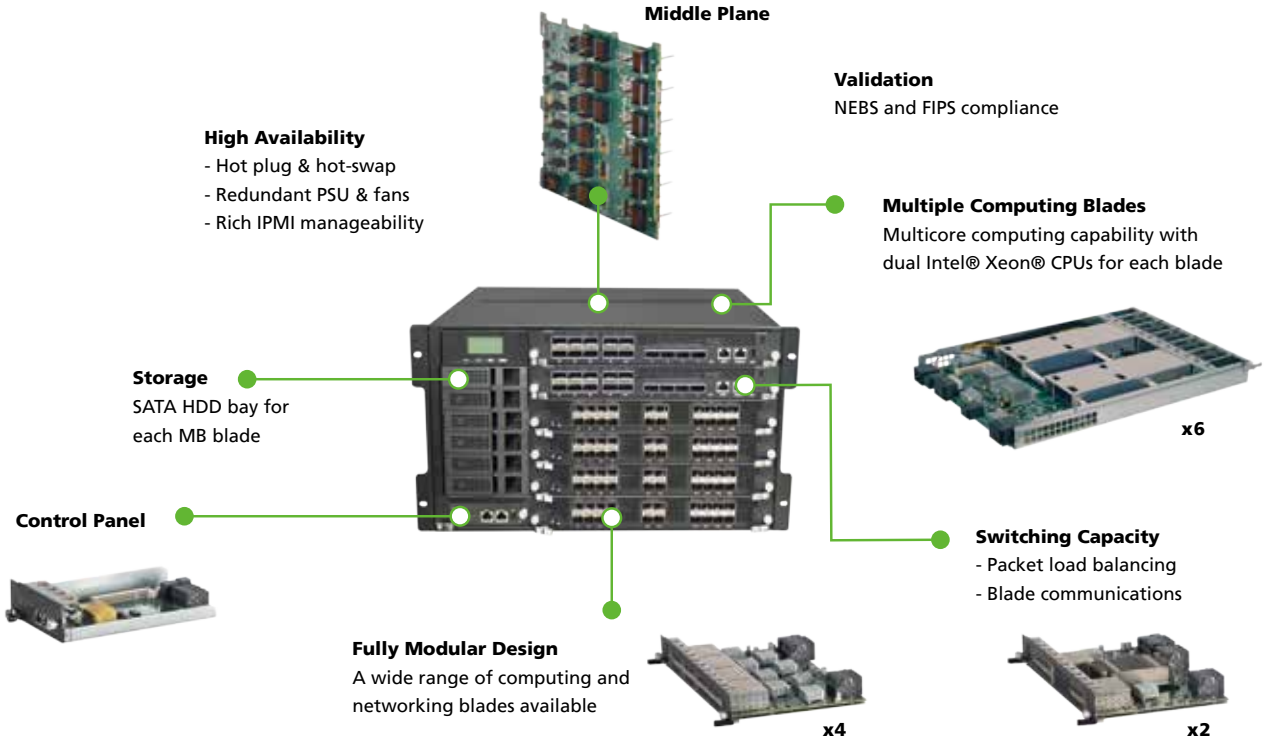
Lanner HTCA-E400 compatible and swappable sleds lineup provide enhanced redundancy, interoperability, flexibility, bandwidth and performance boosts.

Blades	Picture	Features/Ports	Chipset
HTCA-E400		HybridTCA™ 4U telecom network appliance chassis	Intel Ice Lake
HMB-E100		1U Compute sled for HTCA-E400	Intel Ice Lake
HMB-E200		2U Compute sled for HTCA-E400	Intel Ice Lake
HLM-E110		1U Switch sled for HTCA-E400 Fabric interface with 6x 100GbE QSFP28, 8x 10/25GbE SFP+ Optional IEEE 1588	Intel Tofino Series

The Compute, I/O blades or NIC modules shown in this material are not designed to operate independently without a compatible Lanner appliance. Please make sure a compatible Lanner appliance is in place before purchasing the modules.

HybridTCA Architecture

Lanner's HybridTCA Platforms integrate control, management and data processing in one system and have advantages over the prevalent AdvancedTCA infrastructure in aspects of hardware design, customization options and cost/energy efficiency.



Compute and Networking Blades

Lanner HTCA-compatible and swappable blades lineup provide enhanced redundancy, interoperability, flexibility, bandwidth and performance boosts.

Blades	Picture	Features/Ports	Chipset
HMB-6110		2 x Intel® Xeon® Processor Scalable Family	Intel C621/C627 PCH (by SKU)
HCM-1001		20 port 10GbE SFP+	Intel XL710
HLM-1100		16 port 100GbE QSFP28 + 8 25/10GbE SFP28	Barefoot Tofino Switch
NEW **HLM-1101**		14x QSFP28 Ports	Barefoot Tofino Switch
HLM-1021		2.0T Bandwidth Fabric Interface Switch 2 x 100G QSFP28,16x 25G SFP28	Broadcom BCM56873(Trident 3)
HLM-1030		6 100GbE QSFP28 4 40GbE QSFP+ 16 10GbE SFP+	BCM56960 (Tomahawk)

The Compute, I/O blades or NIC modules shown in this material are not designed to operate independently without a compatible Lanner appliance. Please make sure a compatible Lanner appliance is in place before purchasing the modules.

Advanced Network Platforms

Feature	Description	FX-3420	ECA-4025 NEW	HTCA-6200
Form Factor		2U 19" Rackmount	1U Rackmount	2U Rackmount
Platform	Processor Options	Intel® Xeon® Processor Scalable Family (Skylake-SP/Cascade Lake-SP up to 205)	Intel® Xeon D-2100 8/12/14/16 Cores Processor	Depends on compute blade specification
	Chipset	Intel C612	N/A	Depends on compute blade specification
OS Support		Linux Kernel 2.6 or above	Linux Kernel 2.6 or above,	Linux Kernel 2.6 or above
System Memory	Technology	DDR4 2933 MHz REG DIMM	DDR4 2666MHz REG DIMM	Depends on compute blade specification
	Max. Capacity	768GB	64 GB	Depends on compute blade specification
	Socket	24x 288-pin DIMM	2 x 288-pin DIMM	Depends on compute blade specification
Storage	HDD Bays	Front: 12x 3.5" HDD SATA 6G /SAS 12G or 12x 2.5" NVME Back: 2 x 2.5" SATA 6G	4 x 2.5" Internal SSD/HDD drive bays	2 x 2.5" Swappable HDD drive bays
	CF/SD	N/A	1 x M.2 NVMe 2280 M key	Depends on compute blade specification
Networking	Ethernet Ports	4 x 10G SFP+ 6 x GbE RJ45	1 x GbE RJ45 and 8 x 10G SFP+	Blade 1~2: Switch Fabric Blade or Ethernet I/O Blade
	Bypass	N/A	N/A	N/A
	Controllers	i350 / XL710	1 x Intel i210	Depends on blade specification (HLM series)
	NIC Module Slot / Blade	N/A	N/A	2 x Blades
	IPMI	IPMI Chip Onboard	1 x onboard IPMI port	1 x onboard IPMI port
	Management Port	N/A	N/A	1 x Management port
I/O Interface	Reset Button	Yes	Yes	Yes
	Console	1 x DB9	1 x RJ-45	1 x RJ-45
	USB	2 x USB 2.0, 2 x USB 3.0	1 x USB 3.0	1 x USB 2.0
Expansion	PCIe	2x PCI-E*16 FH/FL + 1x PCI-E*8 HH/HL M.2 PCI-e SSD	1 x PCI-E*16 FH 3/4L	N/A
	mini-PCIe / NVME	Optional	1x M.2 NVMe 2280 M key	N/A
Cooling	Processor	Passive CPU Heatsink	CPU heatsink with fan duct	CPU heatsink with fan duct
	System	6x individual hot-swappable cooling fans with smart fan	5 x smart fans	5 x hot-swappable cooling fans per M/B
Environmental Parameters	Temperature	0~40°C / -20~70°C	-40~65°C Operating -40~70°C Non-Operating	0 ~ 40°C Operating -20~70°C Non-Operating
	Humidity (RH)	5~90% non condensing / 5~95%, non condensing	5 ~ 90% Operating 5 ~ 95% Non-Operating	5 ~ 90% Operating 5 ~ 95% Non-Operating
Miscellaneous	LCD Module	N/A	N/A	2 x 20 characters
	Watchdog	Yes	Yes	Yes
	Internal RTC with Li Battery	Yes	Yes	Yes
Dimensions	Dimensions (WxHxD)	445 x 88 x 785 mm	438 x 300 x 44 mm	438 x 88 x 685 mm
	Weight	TBD	5 kg	26 kg
Power	Watts / Type	1200W 1+1 Redundant PSU	400W 1+1 Redundant PSU	AC 2000 watt N+1 Redundant /each DC 1600 watt N+1 Redundant /each PM bus support
	Input	AC 100V~240V @47~63Hz	-57 VDC ~ -40VDC dual input feed	AC 85 ~ 264 V DC -36V ~ -72V
Approvals & Compliance		CE/FCC Class A	CE/FCC Class A, UL	CE Class A, FCC Class A, RoHS, NEBS design compliance

HTCA-E400 NEW	HTCA-6400 NEW	HTCA-6600
4U Rackmount	4U Rackmount	6U Rackmount
Intel® Xeon® Processor Scalable Family (Ice Lake-SP)	Depends on compute blade specification	Depends on compute blade specification
Depends on compute blade specification	Depends on compute blade specification	Depends on compute blade specification
Linux Kernel 2.6 or above	Linux Kernel 2.6 or above	Linux Kernel 2.6 or above
Depending on compute sled	Depends on compute blade specification	Depends on compute blade specification
Depending on compute sled	Depends on compute blade specification	Depends on compute blade specification
Depending on compute sled	Depends on compute blade specification	Depends on compute blade specification
Depending on compute sled	8 x 2.5" Swappable HDD drive bays	6 x 3.5" Swappable HDD drive bays
Depending on compute sled	Depends on compute blade specification	Depends on compute blade specification
Switch Sled	Blade 1~2: Switch Fabric Blade Blade 3~4: Ethernet I/O Blade	Blade 1~2: Switch Fabric Blade Blade 3~6: Ethernet I/O Blade
N/A	N/A	N/A
Broadcom BCM5396	Depends on blade specification (HLM series)	Depends on blade specification (HLM series)
2 x Sled	4 x Blades	6 x Blades
1 x onboard IPMI port	1 x onboard IPMI ports	1 x onboard IPMI ports
1 x Management port	1 x Management port	1 x Management port
Yes	Yes	Yes
1 x RJ-45	1 x RJ-45	1 x RJ-45
N/A	1 x USB 2.0	1 x USB 2.0
Depending on compute sled	N/A	N/A
N/A	N/A	N/A
CPU heatsink with fan duct	CPU heatsink with fan duct	CPU heatsink with fan duct
5 x hot-swappable cooling fans per 1U Compute Sled 2 x hot-swappable cooling fans per 2U Compute Sled	5 x hot-swappable cooling fans per M/B	5 x hot-swappable cooling fans per M/B
0 ~ 40°C Operating -20~70°C Non-Operating	0 ~ 40°C Operating -20~70°C Non-Operating	0 ~ 40°C Operating -20~70°C Non-Operating
5 ~ 90% Operating 5 ~ 95% Non-Operating	5 ~ 90% Operating 5 ~ 95% Non-Operating	5 ~ 90% Operating 5 ~ 95% Non-Operating
N/A	2 x 20 characters	2 x 20 characters
Yes	Yes	Yes
Yes	Yes	Yes
438 x 88 x 685 mm	438 x 177.3 x 685 mm	438 x 265.9 x 685 mm
27.5 kg	40 kg	55 kg
AC 3000W 1+1 Redundant PSU DC 1600W 220V 1+1 Redundant PSU	AC 2000 watt N+1 Redundant /each DC 1600 watt N+1 Redundant /each PM bus support	AC 1200 watt N+1 Redundant /each DC 1010 watt N+1 Redundant /each PM bus support
DC -36V ~ -72V	AC 85 ~ 264 V DC -36V ~ -72V	AC 85 ~ 264 V DC -36V ~ -72V
CE Class A, FCC Class A	CE Class A, FCC Class A, RoHS, NEBS design compliance	CE Class A, FCC Class A, RoHS, NEBS design compliance

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