



Telecommunication

Innovative Platforms for Next Generation SDN/NFV Infrastructure







Unleashing the Power of SDN/NFV

Telecom service carriers are transitioning from legacy fixed-line, proprietary hardware to more versatile infrastructure utilizing advanced software technologies, such as SDN and NFV, to virtualize and offer more services over the cloud. The potential benefits include reduced CAPEX, flexible scalability, shorter development time and lower investment risk for functional upgrades. Since SDN and NFV are complementary and synergetic, the opportunity around the network software will be more dynamic than ever for the industry, and by 2020, it is expected that the emergence of 5G specifications will totally transform business service models for MSPs.

As more leading service providers are realizing the benefits of SDN and NFV to their business advantage, Lanner, the global supplier in networking platforms, has taken the mission to assist operators in the transition from traditional network infrastructures to today's agile and flexible architectures by supplying optimized and proven networking hardware for SDN and NFV deployments in telecommunication services.

Lanner has a high level of expertise and experience in the design and customization of network computing platforms, covering vCPE, vBNG, vEPC, vIMS, vRAM, SD-WAN, MEC and carrier-grade network security. Throughout 30 years of establishment, Lanner has supplied millions of custom solutions to help enterprises boost their competitiveness. Since 2016, Lanner has formed partnerships with ADVA, Versa Networks, Wind River, ENEA, 128 Technology, NEC/Netcracker and Ciena, and achieved TL9000 certifications for telecom quality management.

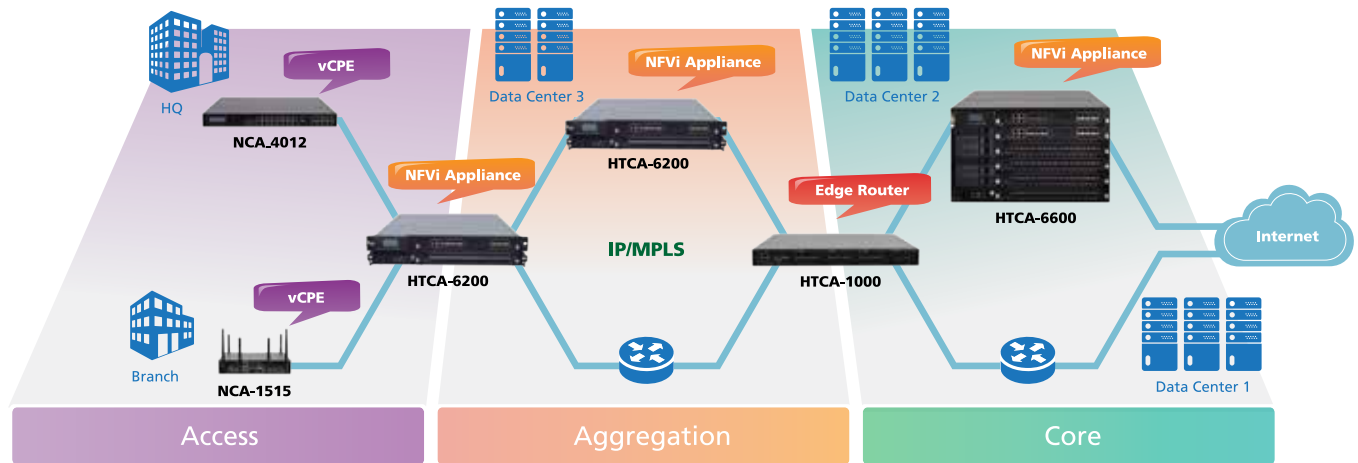
With the anticipation of 5G widespread adoption around 2020, it is expected that more than 90% of service providers will be SDN/NFV ready, and Lanner is determined to offer the optimal hardware solutions that will help clients in their transitions to the next generation software-based network infrastructures.

Jeans Tseng

GM of Telecommunication Application Business Unit

Network Appliances for SDN/NFV

Network Platforms for Next-Gen SDN/NFV Infrastructure



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 / vCPE



vCPE 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

Cloud RAN



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

Carrier Grade NFVI



NFV-I ready platforms for telco central offices, data centers in core networks

vRouter/vBNG



Customizable and scalable whitebox hardware platforms for vRouter and vBNG

SDN/NFV Ecosystem Partners

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.

Wind River™ Titanium Cloud



Wind River Titanium Cloud is a carrier grade NFV software infrastructure solution designed to meet the stringent "always on" requirements by the telecom industry.

Versa Networks



Versa Networks is an innovative vendor in the SD-WAN and SD-Security market. Versa solutions enable service providers and large enterprises to transform the WAN and branch networks to achieve unprecedented business advantages.

ADVA



ADVA Optical Networking SE provides network equipment for data, storage, voice and video services. ADVA Ensemble Connector is a highly scalable, high-performance virtualization platform for hosting multi-vendor VNFs.

ENEA



Enea develops the software foundation for the connected society. We provide solutions for mobile traffic optimization, subscriber data management, network virtualization, traffic classification, embedded operating systems, and professional services.

NTT/Lagopus



NTT Lagopus SDN software switch is an Open Source Software (OSS), which provides a high-performance and flexible functionality suitable for data centers and wide area network applications.

Ciena



Ciena provides a container-based micro-services software architecture that incorporates advanced modeling, templating, and orchestration methodologies to provide a scalable, vendor-agnostic, highly programmable software platform.

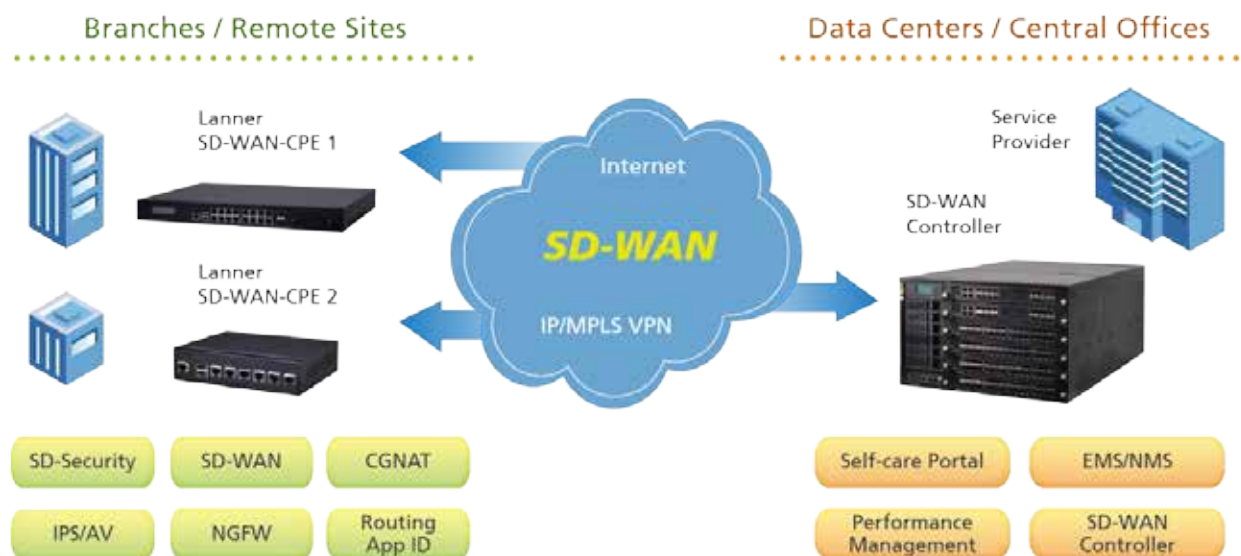
128 Technology



128 Technology is the secure vector routing company. The 128T Networking Platform natively provides network-based security, control and insight across data centers.

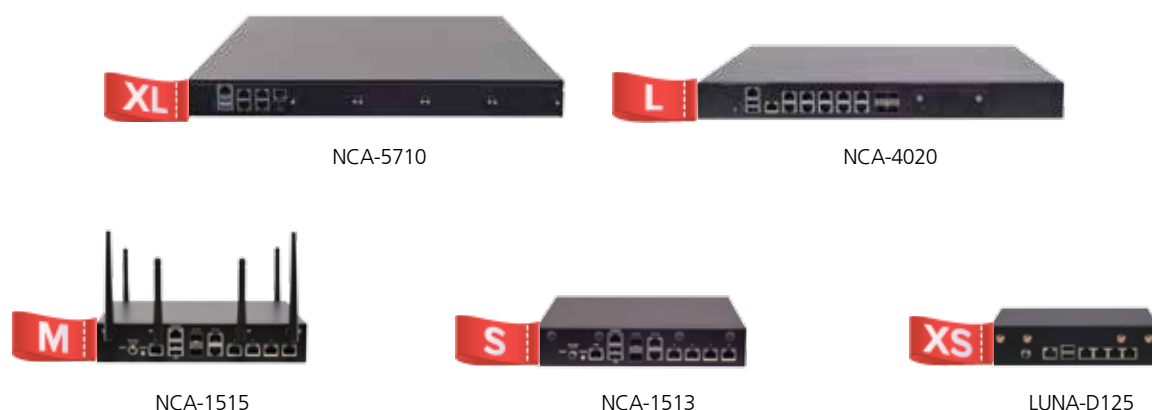
SD-WAN & Virtual CPE

SD-WAN is becoming the most anticipated WAN Services today. According to the latest Gartner Report on WAN Edge Infrastructure, in next 5 years more than 90% of WAN edge infrastructure will be based on vCPE platform or SD-WAN versus traditional router for managing network connectivity and resources from distributed branches to data center and the cloud.



Wide Range of vCPE Platforms for SD-WAN

Lanner has been involved in SD-WAN deployment methods; from designing dedicate network appliances for managed service providers, to building NFV-based platform for hosting VNFs from multi-vendors. These vCPE platforms have been adopt by world-leading SD-WAN solution vendors, from traditional WAN optimization companies, communication service provider, to software start-ups and cloud-based services.



Whitebox Solutions

By leveraging our expertise in network security and IT edge computing, Lanner Whitebox Solutions™ provide a true white box networking platforms that meet most of the specifications that customers are looking for, as well as WiFi and LTE certifications that enable them to be used globally.

Whitebox Solutions™ provide performance-enhanced, desktop/rackmount appliances powered by the latest generation of high core-count x86 processors. Boosted by the packet delivery and virtualization technologies, our white box appliances deliver significant throughput enhancement when running multiple compute-intensive VNFs in SDN/NFV infrastructure.



Pre-Validated Solutions for Time-to-Market Deployment

Network disaggregation promises the liberation from proprietary hardware and emphasizes on white-box gateway. Pre-validated and optimized with leading SD-WAN VNF vendors, Lanner whitebox solutions are designed to accelerate time-to-market deployment for communication service providers.

SD-WAN & SD-Security



NFV-I/MEC



Network Assurance



vBNG/ Cloud-RAN



SDN Switch

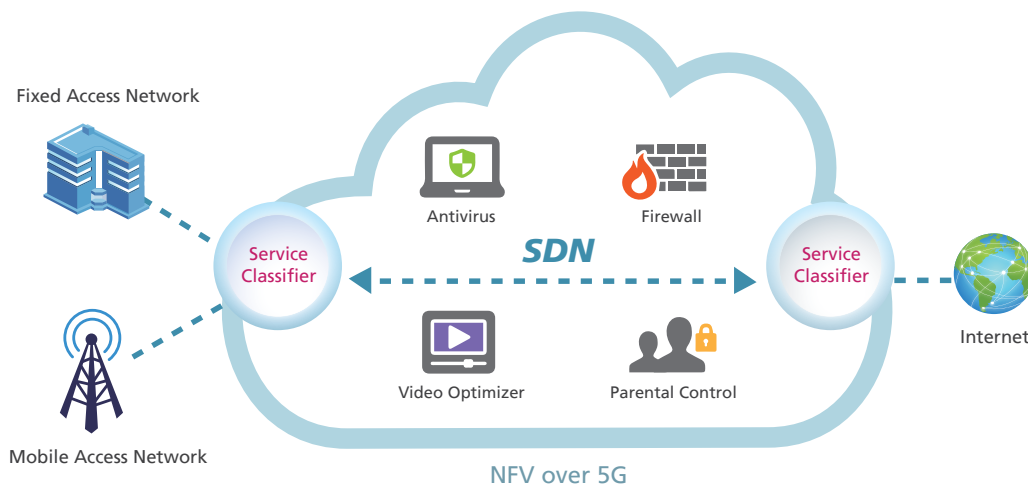


OSS/BSS Orchestrators



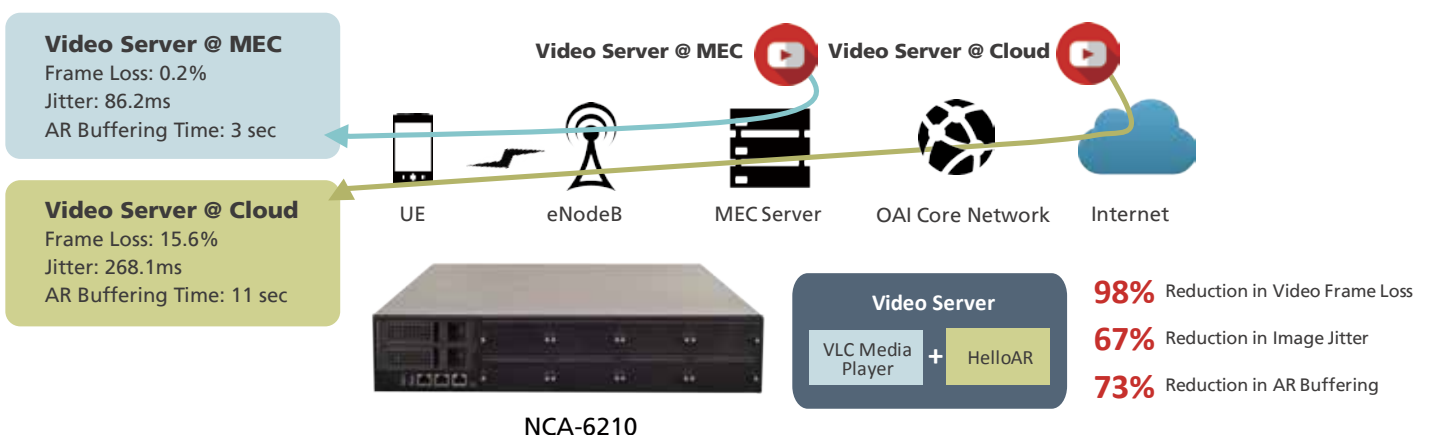
Multi-Access Edge Computing (MEC)

MEC refers to the ability to perform critical core network functions, covering the compute, storage and analytics, at the network edge so that latency is substantially reduced when traffic can be routed to the edge first instead of to the cloud directly. Under this infrastructure, the orchestration aggregates the compute and storage resources, along with networking capability to run user applications at the edge, within proximity to where requests and traffics are generated.



Use case: MEC Platform enables Ultra-low Latency Content Delivery

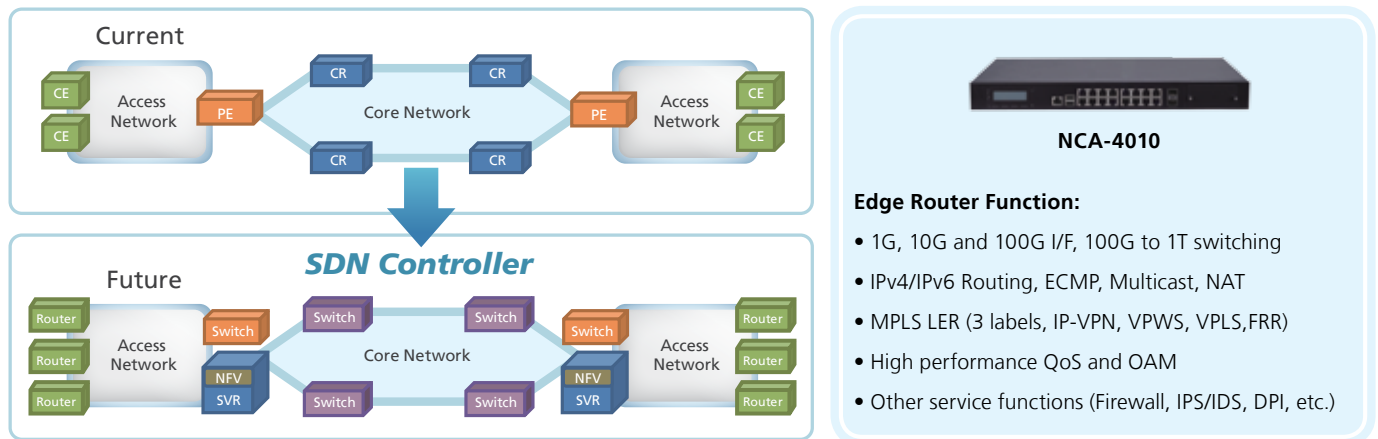
Lanner demonstrates how to use MEC server deployed at the edge to boost CDN (Content Delivery Network) efficiency and provide the ultra-low latency service over 5G networks. We have showcased how real-time video streaming and AR deployed in Lanner MEC platform can enjoy both low latency and high bandwidth. In this demo, Lanner MEC platform NCA-6210 (Powered by Intel Xeon Scalable processors) demonstrates its capability in delivering smooth HD video playback and short buffering time for AR applications.



vRouter

The edge computing and intelligent gateway architecture require the capabilities to tremendous volume of traffic for real-time pre-processing, data analytics, policy control, communication and messaging to connect, collect and manage network programmability.

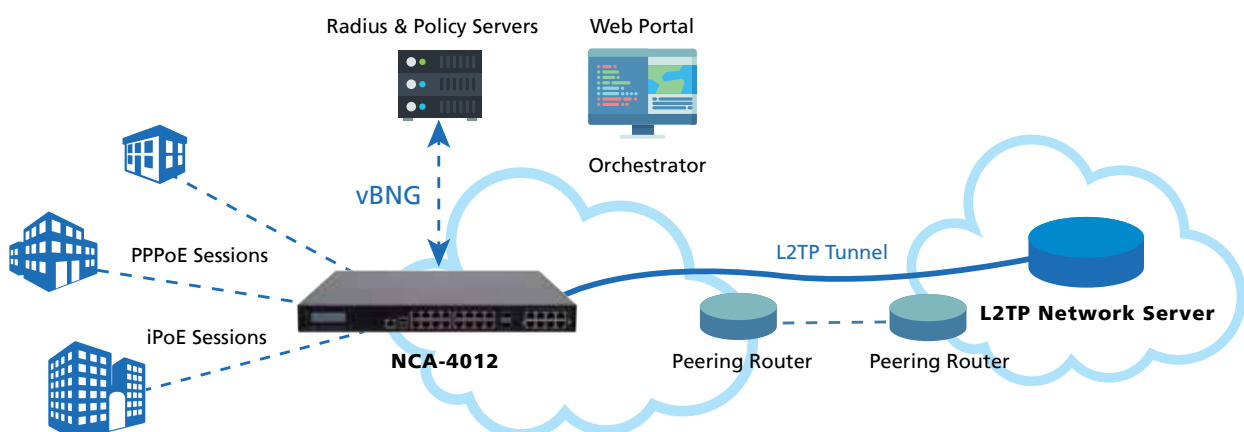
With the rollout of the CORD network infrastructure, the Virtual Router requires to Perform L3 unicast routing to and from the Central Office and participate in dynamic routing protocols, multicast signaling and forwarding, apply Quality of Service (QoS) policies and support and apply NAT functionalities.



vBNG

Rapidly increasing subscriber IP traffic is putting pressure on telecom operators and service providers to upgrade their network and keep up with demand. There is a growing shift within operators to disaggregate certain legacy hardware infrastructure in favor of a more agile software defined architecture. One typical scenario would be replacing a fat central edge router (running BNG) with next gen distributed access devices utilizing NFV to optimize their last mile networks. This includes deploying software based vBNG that will be sited closer to the access devices.

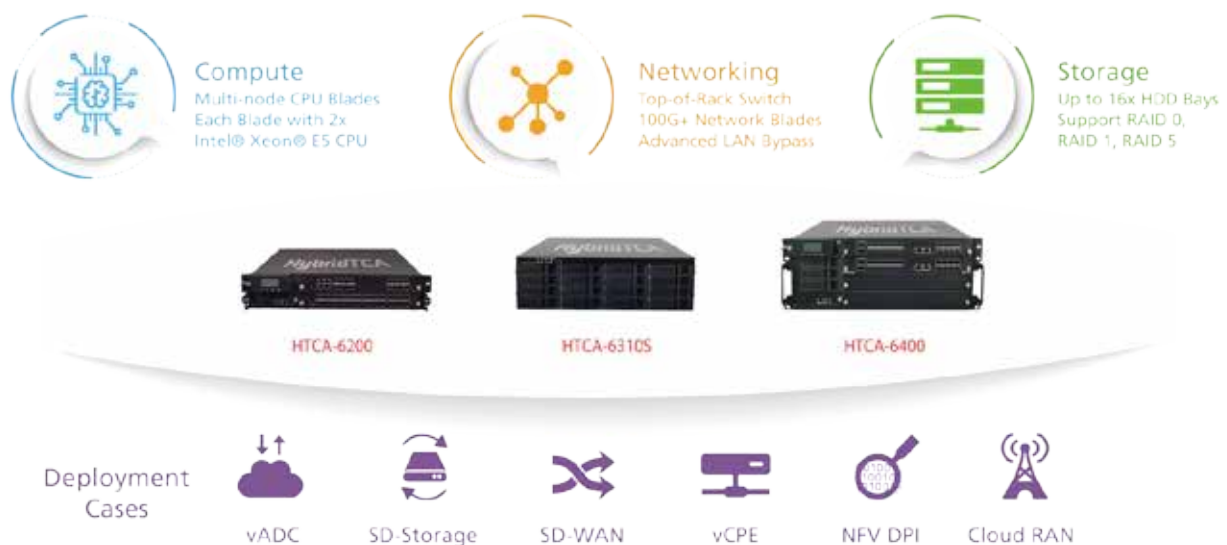
Lanner hardware platforms have been successfully tested and deployed as a vBNG delivering significant performance improvements, shorter service delivery timescales and a scalable future-proof solution. Our extensive range of hardware platforms designed for NFV applications are aimed at delivering lower TCO and maximum flexibility for our partners and customers.



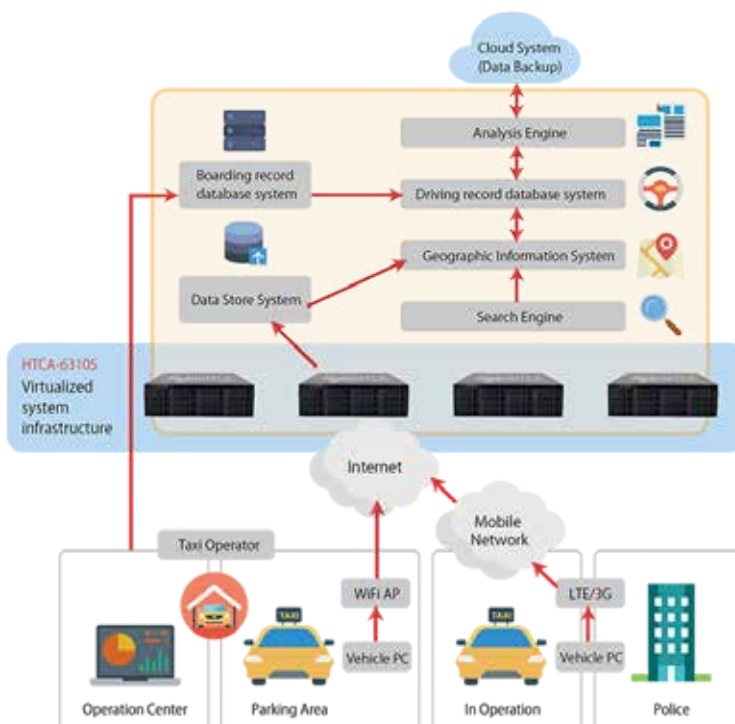
Hyper-Converged Infrastructure

Nowadays, network operators have faced unprecedented challenges from the growth in data traffic and the increased service demands. To expand their bandwidth in the competitive environment without a great extent of additional CAPEX and OPEX, the next-gen telecom infrastructure is anticipated to evolve into a carrier-grade, hyper-converged network platform, offering faster, more agile and more reliable mission-critical applications.

Responding to today's networking demands, Lanner is introducing hyper-converged network platforms aiming at delivering multi-node compute, high-speed 100G switching and massive storage in one single appliance, delivering highly available service agility and economics in edge, CORD and cloud data center.



Use Case: Hyper-Converged Network Platform Enables Intelligent Fleet and Transportation Services



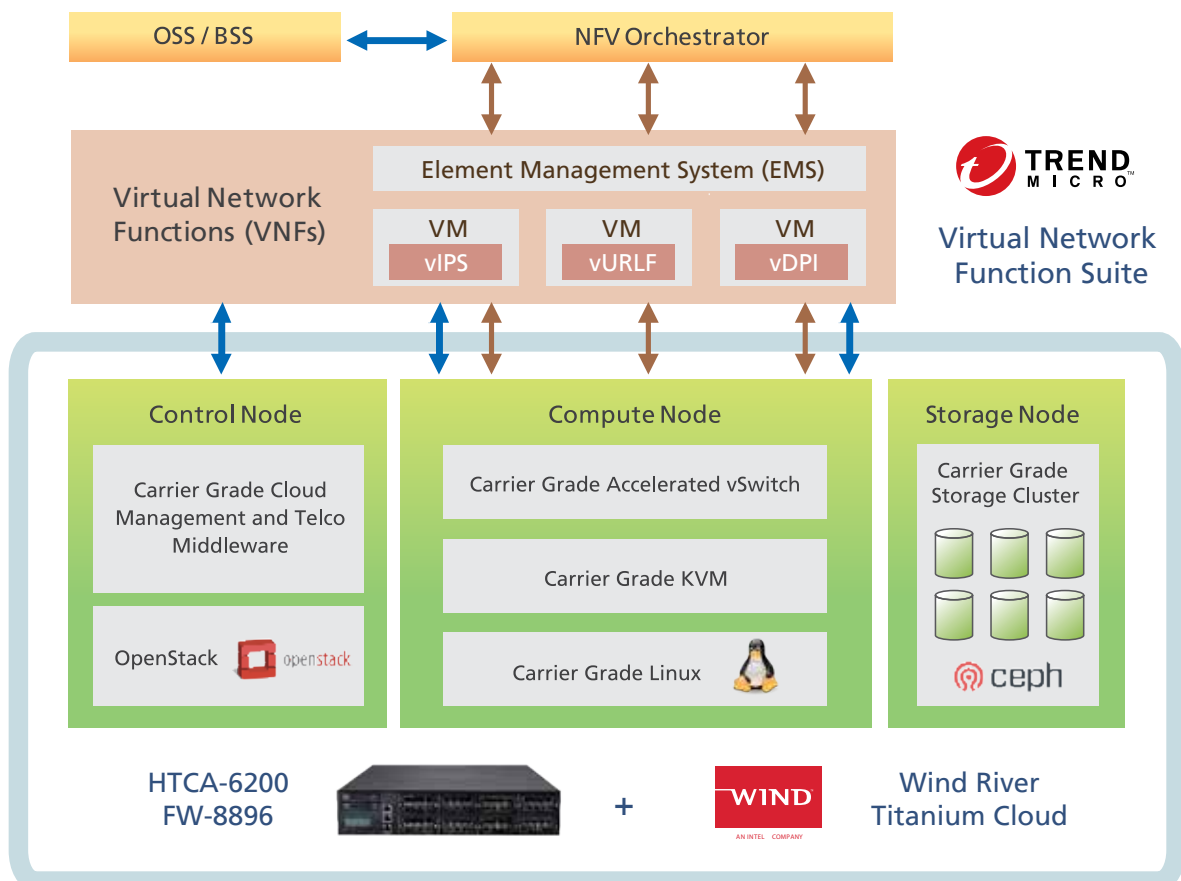
1. HybridTCA™ architecture to seamlessly integrate compute, storage and networking functions
2. Multi-node server grade processors to perform the fleet management tasks, including: driver dispatch, video surveillance, infotainment, payment, big data analysis and demand forecasting
3. Highest Storage Density for recorded and generated data, and with RAID support

Carrier Grade NFVI

To ensure carrier-grade up-time and the high levels of reliability mandated by telecom networks, Lanner's NFV-ready platforms have undergone a comprehensive testing and validation process with the Wind River Titanium Cloud NFV infrastructure (NFVI) software solution. The validation process was conducted as part of the Wind River Titanium Cloud ecosystem program dedicated to accelerate the time-to-deployment of carrier-grade NFV solutions. Through the validation and pre-integration of industry-leading NFV ready hardware and software, Lanner is able to deliver carrier-grade network platforms optimized for NFV deployment, and service providers and TEMs can also be confident in selecting validated vendors in the ecosystem for rapid service deployment.

Use Case: Virtual Network Security in Carrier-grade NFV

Lanner's carrier-grade HTCA-series platforms are pre-integrated with Wind River Titanium Cloud NFV infrastructure (NFVI) software platform and Trend Micro's Virtual Network Function Suite, to present high availability, scale-on-demand network security function for CSPs from premise, edge to core network.



Desktop Network Appliances



Feature		NCA-1510	NCA-1513	NCA-1515
Form Factor		Fanless Desktop	Desktop	Desktop
Platform	Processor Options	Intel® Atom™ C3000 (Denverton)	Intel® Atom® C3000 (Denverton)	Intel® Atom® C3000 (Denverton)
	CPU Socket	onboard	onboard	onboard
	Chipset	SoC	SoC	SoC
	Security Acceleration	Intel QuickAssist Technology	Intel QuickAssist Technology	Intel QuickAssist Technology
BIOS		AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
System Memory	Technology	DDR4 2400/2133/1866 MHz ECC/Non-ECC SODIMM (By SKU)	DDR4 2133/1866 MHz ECC/Non-ECC SODIMM (By SKU)	DDR4 2400/2133/1866 MHz ECC/Non-ECC SODIMM (By SKU)
	Max. Capacity	16 GB	16 GB	32 GB
	Socket	1 x 260-pin SODIMM	1 x 260-pin SODIMM	2 x 260-pin SODIMM
Networking	Ethernet Ports	4 x GbE RJ45 Intel® SoC Integrated MAC 2 x GbE RJ45 or SFP Intel® i210 (By SKU)	4 x GbE RJ45 Marvell 88E1543 2x GbE RJ-45 Intel i210-AT or 2x GbE SFP Intel i210-IS (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)
	Bypass	1 pair Gen3 (By SKU)	2 pairs Gen3 (By SKU)	1 pair Gen3 (By SKU)
	NIC Module Slot	N/A	N/A	N/A
LOM	I/O Interface	N/A	N/A	1 x RJ45 (By SKU)
	OPMA Slot	N/A	N/A	Yes
I/O Interface	Reset Button	1	1	1
	LED	Power/Status/Storage	Power/Status/Storage	Power/Status/Storage
	Power Button	1	1	1
	Console	1 x Mini USB	1 x RJ-45	1 x RJ-45
	USB	2 x USB 2.0	2 x USB 3.0	2 x USB 2.0
	LCD Module	N/A	N/A	N/A
	Display	N/A	N/A	N/A
	Power Input	1 x DC Jack	1 x DC Jack	1 x DC Jack
Storage	HDD/SSD Support	1 x 2.5" Bay (Optional)	1 x 2.5" Internal (Optional)	1 x 2.5" Bay (Optional)
	Onboard Storage	1 x EMMC 8GB	1 x EMMC 8GB, 1 x M.2-2242/2280, B Key	1 x EMMC 8GB
Expansion	PCIe	N/A	N/A	N/A
	mini-PCIe	1 x Mini-PCIe (PCIe) 1 x M.2 (USB2.0/PCIe) 1 x Nano SIM	1 x Mini-PCIe (PCIe/USB2.0) 1 x M.2 3042 (USB3.0) 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
Miscellaneous	Watchdog	Yes	Yes	Yes
	Internal RTC with Li Battery	Yes	Yes	Yes
	TPM	Yes	Yes	Yes
Cooling	Processor	Passive CPU heatsink	Passive CPU Heatsink	Passive CPU Heatsink
	System	Fanless	1 x Cooling Fan w/ Smart Fan	1 x Cooling Fan w/ Smart Fan
Environmental Parameters	Temperature	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
	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	(WxHxD)	231 x 44 x 200 mm	231 x 44 x 200 mm	231 x 44 x 200 mm
	Weight	1.2 kg	1.2 kg	1.2 kg
Package Dimensions	(WxHxD)	325 x 305 x 120 mm	358 x 290 x 135 mm	358 x 290 x 135 mm
	Weight	2.2 kg	2.75 kg	2.75 kg
Power	Type / Watts	36W or 60W Power Adapter (By SKU)	40W power adapter	36W or 60W Power Adapter (By SKU)
	Input	AC 100~240V @50~60 Hz	AC 100~240V @50~60 Hz	AC 100~240V @50~60 Hz
Approvals and Compliance		RoHS, CE/FCC Class B, UL	RoHS, CE/FCC Class B, UL	RoHS, CE/FCC Class B, UL VCCI, CCC, PTCRB, ODI



NCA-1611	NCR-1510	FW-7525 / FW-7526	FW-7551SE
Desktop	Fanless Desktop	Fanless Desktop	Desktop
Intel® Xeon® D-1500 (Broadwell-DE NS)	Intel® Denverton C3308/C3508/C3708 (2~8 Cores)	Intel® Atom™ C2358/C2518/C2558 Intel® Atom™ C2358/C2558	Intel® Atom™ C2358/C2558/C2758 (Rangeley)
onboard	onboard	onboard	onboard
SoC	SoC	SoC	SoC
Intel® QuickAssist Technology	Intel® QuickAssist Technology	Intel® QuickAssist Technology	Intel® QuickAssist Technology
AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
DDR4 2133MHz ECC/Non-ECC RDIMM	DDR4 2400MHz ECC/Non-ECC	DDR3 1333/1600 MHz UDIMM	DDR3 1333/1600 MHz ECC DIMM
128 GB	16 GB	8 GB	16 GB
4 x 288-pin DIMM	2 x 260-pin SODIMM (By SKU)	1 x 204-pin SODIMM	1 or 2 x 204pin SODIMM (By SKU)
6 x GbE RJ45 Intel® i350-AM4 2 x SFP Intel® i350-AM4 (By SKU) 2 x SFP+ SoC Integrated MAC (By SKU)	6 x GbE RJ45 or 4 x RJ45 & 2 x GbE SFP (By SKU)	4 x GbE RJ45 Intel® SoC Integrated i354 2 x GbE RJ45 Intel® i210 (By SKU)	4 x GbE RJ45 Intel® SoC Integrated MAC, 2 x GbE RJ45 Intel® i210 (By SKU) or 2 x GbE RJ45 Intel® i210 (By SKU)
1 pair Gen3 (By SKU)	1 pair Gen3	1 pair Gen2 (By SKU)	N/A
N/A	N/A	N/A	N/A
1 x RJ45	N/A	N/A	N/A
IPMI Onboard (By SKU)	N/A	N/A	N/A
1	1	1	1
Power/Status/Storage	Power/Status/Storage	Power/Status/Storage	Power/Status/Storage
1	1	1	1
1 x RJ45	1 x Mini USB	1 x RJ45	1 x RJ45
2 x USB 3.0	2 x USB 3.0 (By SKU)	2 x USB 2.0	2 x USB 2.0
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
2 x DC Jack	1 x DC Jack	1 x DC Jack	1 x DC Jack
1 x 2.5" Bay (Optional)	1 x 2.5" Bay (Optional)	1 x 2.5" Bay - SSD Only (By SKU/Optional)	1 x 2.5" Bay (Optional)
1 x SATADOM (Optional)	1 x M.2 2242, 1 x SATA III	1 x Type II CF / 1 x mSATA	1 x M.2 2242, 1 x SATA
N/A	N/A	N/A	N/A
2 x Mini-PCIe Half Size (PCIe/USB2.0) 1 x Nano SIM Slot	2 x Mini-PCIe (PCIe/USB2.0) 1 x M.2 B Key 3042/2242 (USB3.0) 2 x Nano SIM for M.2	1 x Mini-PCIe (PCIe/USB2.0)	1 x Mini-PCIe (PCIe/USB2.0)
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes (By SKU) / Yes	Yes
Passive CPU heatsink	Passive CPU heatsink	Passive CPU heatsink	Passive CPU heatsink
3 x cooling fans	Fanless	Fanless	1 x cooling fan with smart fan
0~50°C Operating -20~70°C Non-Operating	-40~70°C Operating (SKU A/B) -40~60°C Operating (SKU C) -40~85°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	5~90% Operating 5~95% Non-Operating
275 x 44 x 310 mm	310 x 44 x 240 mm	177 x 44 x 146 mm	231 x 44 x 200 mm
3 kg	3 kg	1.5 kg	1.2 kg
478 x 359 x 163 mm	TBD	270 x 250 x 120 mm	325 x 305 x 120 mm
5 kg	TBD	2 kg	2.2 kg
90W Power Adapter (Optional 1+1)	60W Power Adapter	36W or 60W Power dapter (By SKU)	36W or 60W Power Adapter
AC 100~240V @50~60 Hz	9~54 VDC	AC 100~240V @50~60 Hz	AC 100~240V @50~60 Hz
RoHS, CE/FCC Class A, UL	RoHS, CE/FCC Class A	RoHS, CE/FCC Class B, UL	TBD

Rackmount Network Appliances



Feature		NCA-2510/NCA-2512	NCA-4010/NCA-4012
Form Factor		1U 19" Rackmount	1U 19" Rackmount
Platform	Processor Options	Intel® Atom™ C3000, 8~16 Cores (Denverton)	Intel® Xeon® D-1500 4~16 Cores (Broadwell-DE)
	CPU Socket	onboard	onboard
	Chipset	SoC	SoC
	Security Acceleration	Intel® QuickAssist Technology	N/A
BIOS		AMI SPI Flash BIOS	AMI SPI Flash BIOS
System Memory	Technology	DDR4 2400MHz ECC or non-ECC UDIMM	DDR4 2400MHz REG, ECC or non-ECC UDIMM
	Max. Capacity	32GB	32GB
	Socket	4 x 288pin DIMM	2 x 288pin 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)	8 x GbE RJ45 Intel® i210 8 x GbE RJ45 Intel® i350-AM4 (By SKU) 2 x 10G SFP+ Broadwell-DE SOC (By SKU)
	Bypass	2 pairs Gen3 (By SKU)	3 pairs Gen3 (By SKU)
	NIC Module Slot	1	1
LOM	I/O Interface	1 x RJ45 (By SKU)	1 x RJ45 (By Project) *Share with ETH0
	OPMA Slot	Yes (By SKU)	Yes (By SKU)
I/O Interface	Reset Button	1	1
	LED	Power/Status/Storage	Power/Status/Storage
	Power Button	1 x ATX Power switch	1 x ATX Power switch
	Console	1 x RJ45	1 x RJ45
	USB	2 x USB 3.0 / 2 x USB 2.0	2 x USB 2.0
	LCD Module	2x20 character LCM 4 x keypads	2x20 character LCM 4 x keypads
	Display	From OPMA slot (Optional)	From OPMA slot (By Project)
	Power Input	AC power inlet on PSU	AC power inlet on PSU
Storage	HDD/SSD Support	2 x 2.5" bays	2 x 2.5" bays
	Onboard Storage	1 x mSATA	1 x mSATA
Expansion	PCIe	1 x PCI-E*8 HH/HL (Optional)	1 x PCI-E*8 FH/HL (Optional)
	mini-PCIe	N/A	N/A
Miscellaneous	Watchdog	Yes	Yes
	Internal RTC with Li Battery	Yes	Yes
	TPM	Yes (optional)	Yes (optional)
Cooling	Processor	Passive CPU heatsink	Passive CPU heatsink
	System	2 x cooling fans with smart fan	2 x cooling fans with smart fan
Environmental Parameters	Temperature	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
System Dimensions	(WxDxH)	438 x 321 x 44 mm / 438 x 431 x 44 mm	438 x 321 x 44 mm / 438 x 431 x 44 mm
	Weight	7 kg	7.5 kg
Package Dimensions	(WxDxH)	540 x 500 x 230 mm / 582 x 548 x 182 mm	540 x 500 x 230 mm / 582 x 548 x 182 mm
	Weight	8 kg	8.5 kg
Power	Type / Watts	220W ATX Single PSU/300W Redundant PSU	220W ATX Single PSU/300W Redundant PSU
	Input	AC 90~264V @47~63Hz	AC 90~264V @47~63Hz
Approvals and Compliance		RoHS, CE/FCC Class A, UL	RoHS, CE/FCC Class A, UL



NCA-4020	NCA-4210	FW-7573/FW-7571
1U 19" Rackmount	1U 19" Rackmount	1U 19" Rackmount
Intel® Xeon® D2100 8~16 Cores (Skylake-DE)	The 6/7th Intel® Core™ i7/i5/i3 or Pentium® or Celeron® (Skylake/Kaby Lake)	Intel® Atom™ C2758/C2518 (Rangeley) / Intel® Atom™ C2358 (Rangeley)
1 x FCPGA	1 x LGA1151	onboard
N/A	Intel® H110 or C236	SoC
Intel® QuickAssist Technology	N/A	Intel® QuickAssist Technology
AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
DDR4 2666MHz REG DIMM	DDR4 2400MHz ECC(By CPU for C236 only) or non-ECC UDIMM	DDR3 1333/1600MHz ECC or non-ECC UDIMM
128GB	32GB	16GB/8GB
4 x 288-pin DIMM	2 x 288pin DIMM	2 x 240pin DIMM
10 x GbE RJ45 with 8 x Port PoE+ and 4 x SFP+ (SKU A/B) 10 x GbE RJ45 with 4 x Port PoE+ and 4 x SFP+ (SKU C/D)	6 x GbE RJ45 Intel® i210 2 x GbE SFP Intel® i210-IS (SKU B/C) 8 x GbE RJ45 Intel® i210 (SKU C)	4 x GbE RJ45 Intel® SoC Integrated i354 2 x GbE RJ45 Intel® i210 (By SKU)
N/A	2 pairs Gen3 (By SKU)	3 pairs Gen3 (By SKU)/2 pairs Gen3 (By SKU)
N/A	1	1/N/A
1 x RJ45	1 x RJ45 (Optional) *Share with ETH0	N/A
IPMI Onboard	Yes	N/A
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 2.0
N/A	2x20 character LCM 4 x keypads	2x20 character LCM 4 x keypads/N/A
Internal Pin Header	From OPMA slot (Optional)	N/A
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 2.5" Bays or 1x 3.5" (Optional)
2 x M.2 (w/ LTE Support)	1 x mSATA	1 x Type II CF
1 x PCI-E*8 FH/HL (Optional)	1 x PCI-E*8 FH/HL (By Project)	1 x PCI-E*8 FH/HL (optional)
1 x Mini-PCle (PCle*1/USB2.0)	N/A	N/A
Yes	Yes	Yes
Yes	Yes	Yes
Yes (optional)	Yes (optional)	Yes (By SKU)/Yes (By Project)
Passive CPU heatsink	Passive CPU heatsink	Passive CPU heatsink
3 x cooling fans with smart fan	2 x cooling fans with smart fan	1 x cooling fan 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	431 x 305 x 44 mm
7.9 kg	7.5 kg	6.5 kg/6 kg
739 x 582 x 215 mm	540 x 500 x 230 mm	540 x 510 x 215 mm
13.6 kg	8.5 kg	7.5 kg/7 kg
600W 1+1 ATX Redundant PSUs	220W ATX Single PSU	150W ATX Single PSU/100W ATX Single PSU
AC 100~240V @47~63Hz	AC 90~264V @47~63Hz	AC 100~240V @50~60 Hz
RoHS, CE/FCC Class A, UL	RoHS, CE/FCC Class A, UL	RoHS, CE/FCC Class A, UL

Rackmount Network Appliances



Feature	Description	NCA-5210	NCA-5220
Form Factor		1U 19" Rackmount	1U 19" Rackmount
Platform	Processor Options	Intel® Xeon® E3-1200v5/v6 or the 6/7th Core™ i7/i5/i3 or Pentium® or Celeron® (Skylake/Kaby Lake)	Intel® Xeon® E-2100 Processor (Coffee Lake)
	CPU Socket	1 x LGA1151	1 x LGA1151
	Chipset	Intel® C236	Intel® C246
	Security Acceleration	N/A	N/A
BIOS		AMI SPI Flash BIOS	AMI SPI Flash BIOS
System Memory	Technology	DDR4 2400MHz ECC(By CPU) or non-ECC UDIMM	DDR4 2666 MHz ECC (By CPU) or Non-ECC UDIMM
	Max. Capacity	64GB	64GB
	Socket	4 x 288pin DIMM	4 x 288-pin DIMM
Networking	Ethernet Ports	1 x GbE RJ45 Intel® i210 / 8 x GbE RJ45 Intel® i210 (SKU A) 12 x GbE RJ45 Intel® i350-AM4 + 4 x GbE SFP Intel® i350-AM4 (SKU B); 4 NIC modules (SKU C)	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)
	Bypass	up to 6 pairs Gen3 (By SKU)	Up to 3 Pairs of Gen3 Bypass (By SKU)
	NIC Module Slot	2 or 4 (By SKU)	2
LOM	I/O Interface	1 x RJ45 (Optional) *Share with ETH0	1 x RJ45 (Optional)
	OPMA Slot	Yes	Yes
I/O Interface	Reset Button	1	1
	LED	Power/Status/Storage	Power/Status/Storage
	Power Button	1 x ATX Power switch	1 x ATX Power Switch
	Console	1 x RJ45	1 x RJ45
	USB	2 x USB 3.0	2 x USB 3.0
	LCD Module	2x20 character LCM 4 x keypads	4 x Keypads, 2x16 Character LCM
	Display	From OPMA slot (Optional)	From OPMA Slot (Optional)
	Power Input	AC power inlet on PSU	AC Power Inlet on PSU
Storage	HDD/SSD Support	2 x 2.5" bays	2 x 2.5" Bays
	Onboard Storage	1 x mSATA	1 x M.2 2242, B+M Key (Optional)
Expansion	PCIe	1 x PCI-E*8 FH/HL (By Project)	2 x PCIe*4 FH/HL (Optional)
	mini-PCIe	N/A	N/A
Miscellaneous	Watchdog	Yes	Yes
	Internal RTC with Li Battery	Yes	Yes
	TPM	Yes (optional)	Yes (optional)
Cooling	Processor	Passive CPU heatsink	Passive CPU heatsink
	System	4 x cooling fans with smart fan	Default x 2, Reserved x 1 Cooling Fans with Smart Fan
Environmental Parameters	Temperature	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
System Dimensions	(WxDxH)	438 x 525 x 44 mm	438 x 468 x 44 mm
	Weight	15 kg	7.1kg
Package Dimensions	(WxDxH)	790 x 600 x 220 mm	739 x 582 x 215 mm
	Weight	16 kg	13kg
Power	Type / Watts	300W 1+1 ATX Redundant PSUs	300W 1+1 ATX Redundant PSUs
	Input	AC 90~264V @47~63 Hz	AC 90V~264V @47~63Hz
Approvals and Compliance		RoHS, CE/FCC Class A, UL	RoHS, CE/FCC Class A, UL



NCA-5520	NCA-5710	NCA-6210
1U 19" Rackmount	1U 19" Rackmount	2U 19" Rackmount
Intel® Xeon® Processor Scalable Family (Skylake/Cascade Lake-SP)	Intel® Xeon® Processor Scalable Family (Skylake/Cascade Lake-SP)	Intel® Xeon® Processor Scalable Family (Skylake/Cascade Lake-SP)
1 x LGA3647	2 x LGA3647	2 x LGA3647
Intel® C621/626	Intel® C621/627	Intel® C621/627
Intel® QuickAssist Technology (By SKU)	Intel® QuickAssist Technology (By SKU)	Intel® QuickAssist Technology (By SKU)
AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
DDR4 2666MHz REG DIMM	DDR4 2666MHz REG DIMM	DDR4 2666MHz REG DIMM
384GB	384GB	640GB
12 x 288pin DIMM	12 x 288pin DIMM	20 x 288pin DIMM
4 x GbE RJ45 or 4 x 10G SFP+ Lewisburg Internal MAC	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)
Depends on NIC Module Specifications	Depends on NIC Module Specifications	Depends on NIC Module Specifications
4	4	8
1 x RJ45 (Optional)	1 x RJ45 (Optional) *Share with ETH0	1 x RJ45 (By SKU)
N/A, IPMI Chip Onboard	IPMI Chip Onboard (SKU B & C)	IPMI Onboard (SKU C & D)
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	1 x RJ45, 1 x Mini USB (By SKU)
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	Internal Pin Header	1 x VGA (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" Internal	2 x 3.5" Swappable (with Support for 2 x 2.5")
1 x mSATA	1 x M.2	1 x mSATA (M.2 By Project)
1 x PCI-E*16 FH/HL (Optional)	1 x PCI-E*16 FH/HL (Optional)	1 x PCI-E*16 FH/HL (Optional)
N/A	N/A	N/A
Yes	Yes	Yes
Yes	Yes	Yes
Yes (Optional)	Yes (Optional)	Yes (Optional)
Passive CPU heatsink	Passive CPU heatsink	Passive CPU heatsink
4 x Individual Hot-swappable cooling fans with smart fan	6 x Individual Hot-swappable cooling fans 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 43.5 mm	438 x 610 x 44 mm	438 x 600 x 88 mm
16.5 kg	24 kg	24 kg
790 x 600 x 220 mm	790 x 600 x 220 mm	825 x 600 x 270 mm
18kg	18 kg	26 kg
TBD	650W 1+1 ATX Redundant PSUs	800W 1+1 ATX Redundant PSUs
AC 100~240V @47~63Hz	AC 100~240V @47~63Hz	AC 100~240V @47~63Hz
TBD	RoHS, CE/FCC Class A, UL	RoHS

Rackmount Network Appliances



Feature		NCA-4112	NCA-6110	FW-8877
Form Factor		1U 19" Rackmount	2U 19" Rackmount	1U 19" Rackmount
Platform	Processor Options	AMD EPYC™ 3000 Series 4~8 Cores	AMD EPYC™ 7000 Series (Up to 32C64T)	Intel® Xeon® E5-2600 v1/v2 (Sandy/Ivy Bridge-EP)
	CPU Socket	onboard	2 x SP3r1	1 x LGA2011
	Chipset	SoC	N/A	Intel® C600
	Security Acceleration	10Gbps Encryption + 10Gbps Decryption	40Gbps Encryption + 40Gbps Decryption	N/A
BIOS		AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
System Memory	Technology	DDR4 2666 MHz ECC/U/R DIMM	DDR4 2666MHz ECC REG DIMM	DDR3 1333/1600MHz REG, ECC or non-ECC UDIMM
	Max. Capacity	128GB	512GB	64GB
	Socket	4 x 288-pin DIMM	16 x 288-pin DIMM	8 x 240pin DIMM
Networking	Ethernet Ports	8 x GbE RJ45 Intel® i350-AM4 2 x 10G SFP+	2 x GbE RJ45 Intel® i210	1 x GbE RJ45 Intel® i210
	Bypass	3 x Pairs of Gen3	N/A	Depends on NIC module specifications
	NIC Module Slot	1 (for 1 x PCIe*8 or 2 x PCIe*4)	4	4
LOM	I/O Interface	1 x RJ45 *Share with ETH0	1 x RJ45 (By SKU)	1 x RJ45 (Optional) *Share with ETH0
	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 2.0	2 x USB 2.0
	LCD Module	1 x LCM, 4 x Keypads	N/A (Optional)	2x20 character LCM 4 x keypads
	Display	From OPMA Slot for VGA (Optional)	1 x VGA (Optional)	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	4 x 3.5" Swappable Bays	1 x 3.5" or 2 x 2.5" bay
	Onboard Storage	1 x M.2 2242, 1 x Mini-PCle	1 x mSATA (M.2 By Project)	1 x Type II CF
Expansion	PCIe	1 x PCIe*2 (Optional)	2x PCIe*8 FH or 1x PCIe*16 FH	1 x PCI-E*8 FH/HL (optional)
	mini-PCle	1 x Mini PCIe (for Wifi)	N/A / Max. 1TB	N/A
Miscellaneous	Watchdog	Yes	Yes	Yes
	Internal RTC with Li Battery	Yes	Yes	Yes
	TPM	TPM 1.2/2.0	Yes (Optional)	Yes (By Project)
Cooling	Processor	Passive CPU Heatsink	Passive CPU Heatsink	Passive CPU heatsink
	System	2 x Cooling Fans w/ Smart Fan	4 x Individual Hot-swappable Cooling Fans	4 x individual hot-swappable cooling fans with smart fan
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 647 x 89 mm	438 x 580 x 44 mm
	Weight	TBD	24 kg	16.5 kg
Package Dimensions	(WxDxH)	582 x 548 x 182 mm	825 x 600 x 270 mm	790 x 600 x 220 mm
	Weight	TBD	26 kg	18 kg
Power	Type / Watts	Redundant 300W Power Adapter	800W 1+1 ATX Redundant PSUs	400W 1+1 ATX Redundant PSUs
	Input	100~240VAC, 50~60Hz, 5~3A	AC 100V~240V @47~63Hz	AC 90~264V @ 47~63 Hz
Approvals and Compliance		RoHS, CE, FCC, UL	RoHS, CE, FCC, UL	RoHS, CE/FCC Class A, UL



FW-8894	FW-8896	FX-3230
1U 19" Rackmount	2U 19" Rackmount	2U 19" Rackmount
Intel® Xeon® E5-2600 v3/v4 (Haswell-EP/Broadwell-EP)	Intel® Xeon® E5-2600 v3/v4 (Haswell-EP/Broadwell-EP)	Intel® Xeon® Processor Scalable Family (Skylake/Cascade Lake-SP)
2 x LGA2011-R3	2 x LGA2011-R3	1 x LGA3647
Intel® C612	Intel® C612	Intel® C621/626
Intel® QuickAssist Technology (By SKU)	Intel® QuickAssist Technology (By SKU)	Intel® QuickAssist Technology (By SKU)
AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
DDR4 2133/2400MHz REG DIMM	DDR4 2133/2400MHz REG DIMM	DDR4 2666MHz REG DIMM
512GB	512GB	384GB
16 x 288pin DIMM	16 x 288pin DIMM	12 x 288pin DIMM
1 x GbE RJ45 Intel® i210	1 x GbE RJ45 Intel® i210	4 x GbE RJ45 or 4 x 10G SFP+ Lewisburg Internal MAC
Depends on NIC module specifications	Depends on NIC module specifications	Depends on NIC Module Specifications
4	8	4
1 x RJ45 (Optional) *Share with ETH0	1 x RJ45 (Optional) *Share with ETH0	1 x RJ45 (Optional)
Yes	Yes	N/A, IPMI Chip 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 RJ45	1 x RJ45, 1 x Mini USB
2 x USB 2.0	2 x USB 2.0	2 x USB 3.0
2x20 character LCM 4 x keypads	2x20 character LCM 4 x keypads	N/A (Optional)
From OPMA slot (Optional)	From OPMA slot (Optional)	Internal Pin Header
AC power inlet on PSU	AC power inlet on PSU	AC power inlet on PSU
1 x 3.5" or 2 x 2.5" bay	1 x 3.5" or 2 x 2.5" internal bay (SKU A/B/C/D) 2 x 2.5" external accessible tray (SKU E/F/G/H)	4 x 3.5" Swappable HDD (2 with Support for NVME SSD)
1 x CFast	1 x CFast	1 x mSATA
N/A	1 x PCI-E*8 FH/HL (optional)	1 x PCI-E*16 FH/HL (Optional)
N/A	N/A	N/A
Yes	Yes	Yes
Yes	Yes	Yes
Yes (Optional)	Yes (Optional)	Yes (Optional)
Passive CPU heatsink	Passive CPU heatsink	Passive CPU heatsink
4 x individual hot-swappable cooling fans with smart fan	4 x individual hot-swappable cooling fans with smart fan	4 x Individual Hot-swappable cooling fans 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 630 x 44 mm	444 x 600 x 88 mm	438 x 600 x 88 mm
16.5 kg	24 kg	TBD
790 x 600 x 220 mm	825 x 600 x 270 mm	TBD
18 kg	26 kg	TBD
650W 1+1 ATX Redundant PSUs	600W/800W 1+1 ATX Redundant PSUs	550W 1+1 Redundant PSUs
AC 100~240V @ 47~63 Hz	AC 100~240V @ 47~63 Hz	AC 100~240V @47~63Hz
RoHS, CE/FCC Class A, UL	RoHS, CE/FCC Class A, UL	TBD

Lanner F.A.S.T. Solutions

Connectivity Modules



100Gbps NIC Module - NCS2-RRC01A

- Intel RRC FM10420 controller
- 2 x 100GbE QSFP28 cages



2-port Network TAP Module - NCS2-TAPG201A

- Intel Ethernet controller
- 2 x GbE RJ45 network TAP ports



4-port PoE NIC Module - NCS2-POEIG401A

- Intel Ethernet controller
- IEEE 802.3af/at compliant
- 4 x PoE RJ45 ports, 30W per module



RF Carrier Module - NCS2-MINIPCI01

- 2 x MPCIE slots
- 2 x SIM card readers
- PCIE/USB signal
- 3 x Antennas



RF Carrier Module - NCS2-MINIPCI02

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

Video Transcoding Modules



4K Video Transcoding Module - NCS2-VT02A

- Onboard Intel® Xeon® E3-1565L v5 CPU with C236 chipset
- Support 4K Ultra-HD resolution and H.265 compression
- Built-in Intel® Iris Pro Graphics GT4e

Storage Modules



NCS2-25TRAY201

- 2x 2.5" Swappable Tray

N3S-35TRAY201

- 2x 3.5" Swappable Tray



NCS2-NVMEM2201

- 2x M.2 Connector
(Length 2280 & 22110)

PCIe Expansion Modules



PCIe Carrier Module - N2S-PCIE16X1

- Support for 1 x PCIe x16 Full Height, Half-length Card, such as GPU Card, Storage, Network Acceleration Card or Flow Processing Card

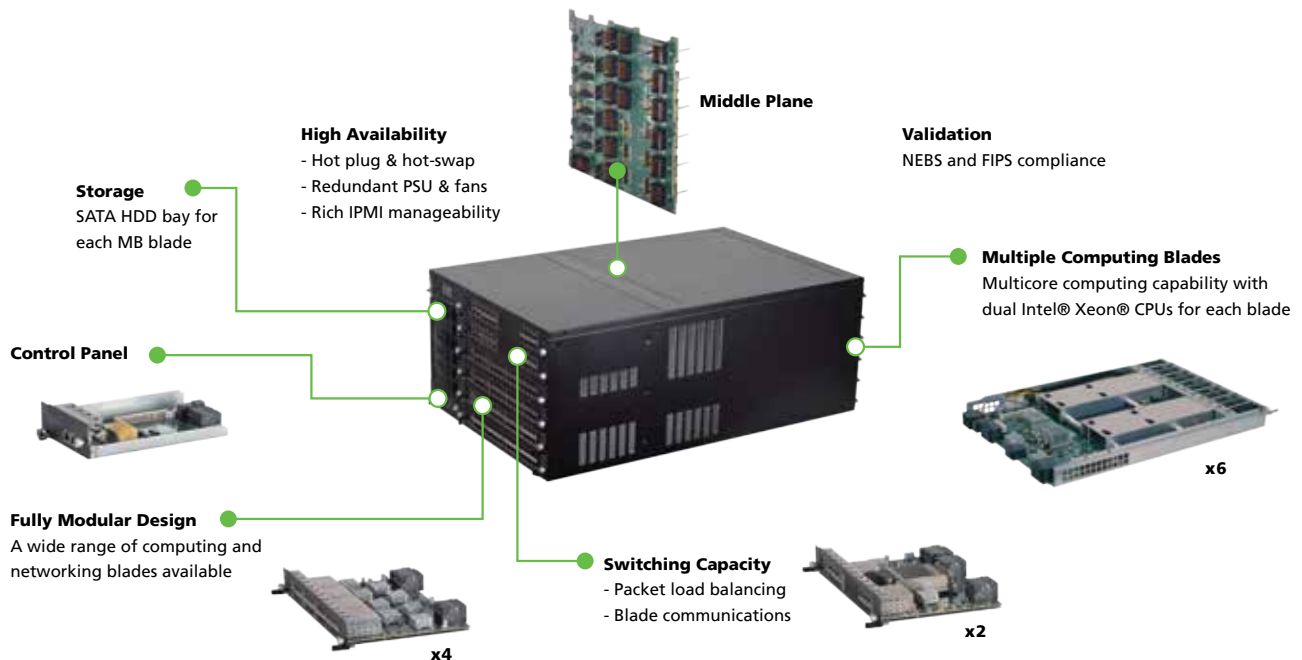


PCIe Carrier Module - N2S-PCIE8X2

- Support for 2 x PCIe x8 Full Height, Half-length Card, such as GPU Card, Storage, Network Acceleration Card or Flow Processing Card

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.



Networking I/O Blades

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

Blades	Picture	Features/Ports	Chipset
NEW HMB-6110		Intel Cascade Lake-SP Dual sockets	Intel C627 PCH
HLM-1001		20 port 10GbE SFP+	Intel XL710
HLM-1020		2 port 100GbE CXP + 20 10GbE SFP+	BCM56860
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
NEW HLM-1100		16x QSFP28+8x SFP28	Barefoot Tofino T10-032D

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		FX-3420	FX-3810	HTCA-6200A
Form Factor		2U 19" Rackmount	3U Rackmount	2U Rackmount
Platform	Processor Options	Intel® Xeon® Processor Scalable Family (Skylake-SP/Cascade Lake-SP up to 205)	Intel® Xeon® processor E5-2600 v3/v4 (Haswell-EP/Broadwell-EP)	Depends on compute blade specification
	Chipset	Intel C612	Intel C612	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 2400 MHz REG DIMM	Depends on compute blade specification
	Max. Capacity	768GB	256 GB	Depends on compute blade specification
	Socket	24x 288-pin DIMM	8 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	2 x 2.5" Swappable HDD drive bays	2 x 2.5" Swappable HDD drive bays
	CF/SD	N/A	1 x mSATA connector	Depends on compute blade specification
Networking	Ethernet Ports	4 x 10G SFP+ 6 x GbE RJ45	2x RJ-45 with LED for IPMI / Management port, 1x RJ45 for console port	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 IPMI port	1 x onboard IPMI ports
	Management Port	N/A	1 x Management port	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	2* PCI-E Gen 3 x 8 Removable slots 4* PCI-E Gen 3 x 16 Removable slots	N/A
	PCI	N/A	N/A	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	8 x hot-swappable cooling fans	5 x hot-swappable cooling fans per M/B
Environmental Parameters	Temperature	0~40°C / -20~70°C	0 ~ 40°C Operating -20~70°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	LCM, 2 x 20 characters	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 132 x 609 mm	438 x 88 x 685 mm
	Weight	TBD	35 kg	26 kg
Power	Watts / Type	1200W 1+1 Redundant PSU	AC 1100 watt 1+1 Redundant /each DC 1100 watt 1+1 Redundant /each PM bus support	AC 1200 watt N+1 Redundant /each DC 1010 watt N+1 Redundant /each PM bus support
	Input	AC 100V~240V @47~63Hz	AC 90~264V @ 50~60Hz DC -36 ~ -72V	AC 85 ~ 264 V DC -36V ~ -72V
Approvals & Compliance		CE/FCC Class A	RoHS compliance	CE Class A, FCC Class A, RoHS, NEBS design compliance



HTCA-6310S

NEW

HTCA-6400

NEW

HTCA-6600A

3U Rackmount

Intel® Xeon® processor E5-2600 v3/v4
(Haswell-EP/Broadwell-EP)

Intel C612

Linux Kernel 2.6 or above

DDR4 2400 MHz REG DIMM

512 GB (16 x 32GB)

8 x 288-pin DDR4 DIMMs

16 x 3.5" Swappable HDD drive bays

1 x CF

1x console RJ45, LOM port, MGMT port,
4 RJ45 ports at rear

N/A

2 x Intel i210

N/A

1 x onboard IPMI ports

1 x Management port

Yes

1 x RJ-45

1 x USB 2.0

Internal 1x PCIe by 16 slot for graphic acceleration card

N/A

CPU heatsink with fan duct

3 x hot-swappable cooling fan sets with smart fan control

0 ~ 40°C Operating
-20~70°C Non-Operating

5 ~ 90% Operating
5 ~ 95% Non-Operating

N/A

Yes

Yes

438 x 132 x 685 mm

30 kg

AC 1200 watt N+1 Redundant
DC 1010 watt N+1 Redundant
PM bus support

AC 85 ~ 264 V
DC -36V ~ -72V

CE Class A, FCC Class A, RoHS

4U Rackmount

Depends on compute blade specification

Intel C612

Linux Kernel 2.6 or above

Depends on compute blade specification

Depends on compute blade specification

Depends on compute blade specification

4 x 2.5" Swappable HDD drive bays

Depends on compute blade specification

Blade 1~2: Switch Fabric Blade
Blade 3~4: Ethernet I/O Blade

N/A

Depends on blade specification (HLM series)

4 x Blades

1 x onboard IPMI ports

1 x Management port

Yes

1 x RJ-45

1 x USB 2.0

N/A

N/A

CPU heatsink with fan duct

5 x hot-swappable cooling fans per M/B

0 ~ 40°C Operating
-20~70°C Non-Operating

5 ~ 90% Operating
5 ~ 95% Non-Operating

2 x 20 characters

Yes

Yes

438 x 177.3 x 685 mm

40 kg

AC 1200 watt N+1 Redundant /each
DC 1010 watt N+1 Redundant /each
PM bus support

AC 85 ~ 264 V
DC -36V ~ -72V

CE Class A, FCC Class A, RoHS, NEBS design compliance

6U Rackmount

Depends on compute blade specification

Depends on compute blade specification

Linux Kernel 2.6 or above

Depends on compute blade specification

Depends on compute blade specification

Depends on compute blade specification

6 x 3.5" Swappable HDD drive bays

Depends on compute blade specification

Blade 1~2: Switch Fabric Blade
Blade 3~6: Ethernet I/O Blade

N/A

Depends on blade specification (HLM series)

6 x Blades

1 x onboard IPMI ports

1 x Management port

Yes

1 x RJ-45

1 x USB 2.0

N/A

N/A

CPU heatsink with fan duct

5 x hot-swappable cooling fans per M/B

0 ~ 40°C Operating
-20~70°C Non-Operating

5 ~ 90% Operating
5 ~ 95% Non-Operating

2 x 20 characters

Yes

Yes

438 x 265.9 x 685 mm

55 kg

AC 1200 watt N+1 Redundant /each
DC 1010 watt N+1 Redundant /each
PM bus support

AC 85 ~ 264 V
DC -36V ~ -72V

CE Class A, FCC Class A, RoHS, NEBS design compliance

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