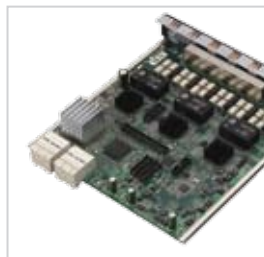




Network Computing

Hardware Platforms for Next Generation Networking Infrastructure







Lanner's Leadership in Network Appliance Hardware

Cloud computing and high-speed mobile communications networks are bringing significant increases to internet traffic, which needs to be transported through network appliances. And with increasingly sophisticated malware, viruses, and other information security risks, the processing power of firewalls and other networking security hardware needs to increase. A lot of processing power is needed to perform deep packet inspection and virus scanning on all the data handled by modern networks.

Lanner has serviced the fast-growing information security industry for over a decade, and today is the leading hardware provider to this industry. There are 44 companies in the 2010 Gartner Magic Quadrants for enterprise network firewalls, UTM, WAN optimization and application delivery. Out of these 44 companies, 32% use hardware made by Lanner. In 2011 we reached a significant milestone, shipping our one millionth networking device. The strong preference demonstrated for Lanner network appliance hardware is our reward for committing ourselves to designing the highest quality hardware in the industry.

We are not resting on our laurels. In 2011 we opened a new factory space, doubling our production capacity. As the industry requires higher volumes of more advanced and more powerful network appliances, we are ready to continue our leadership, and will support our clients and partners so we can all grow together.

Terence Chou

Senior Director, Network Computing Product Division

Who is Lanner?

Lanner Electronics Inc. (TAIEX 6245) is a world-leading provider of design, engineering, and manufacturing services for advanced network appliances and rugged applied computing platforms used by system integrators, service providers and application developers.

Founded in 1986, Lanner is an ISO 9001 and ISO 14001 accredited organization with over 500 staff that is headquartered in Taipei, Taiwan and has offices in the US, Canada and China.

With over 26 years of experience in system and board hardware engineering, Lanner provides reliable and cost-effective computing platforms with high performance.

Lanner is most renowned for its range of x86 and RISC network appliances, and has for a number of years been the key hardware provider to many of the largest network security companies in the world. Lanner delivers hardware for everything from basic load balancing and firewall appliances to more advanced VPN, bypass, intrusion detection and enterprise firewalls. Over the last 10 years, Lanner has shipped more than one million network appliances.

Contents

Who is Lanner?	3
Why Lanner?	4
Design and Manufacturing Services	5
x86 Network Appliances (FW Series).....	8
Network Processing Cards	16
FX Series	20
Network Processor Platforms (MR Series)	24



Why Lanner?



ISO 9001
ISO 14001



High Quality Manufacturing Facilities

With our own PCB layout teams, SMT lines, assembly lines and testing facilities, we control every step of production. During our expansion in November 2011 we also invested in state-of-the-art equipment so that we are now able to produce 48,000 units per month.

By placing our factory at our headquarters in Taiwan we are able to closely monitor production and respond quicker to changes. This gives a flexibility that our customers greatly appreciate. Also we are committed to complying with the RoHS directive, and promoting environmentally friendly manufacturing and production.

Strong Allies

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

Intel®



Lanner is an Associate Member of the Intel® Intelligent Systems Alliance, a community of communications developers, embedded developers and solution providers committed to the development of modular, standards-based solutions on Intel® technologies.

FreescalTM Semiconductor



Lanner is a member of the Freescale™ Alliance, taking advantage of Freescale™ network processors for better performance in IPS, DPI and cryptographic acceleration.

Tilera®



Tilera® Corporation is a fabless semiconductor company committed to delivering unparalleled computational performance with extremely low power consumption. Network Intelligence products by Tilera® include a family of full-featured multi-core processors that span a range of processing and power requirements, a complete set of standards-based software development tools, and a line of high-performance platforms.

Network Intelligence Alliance



Lanner is more than just a dedicated hardware provider. We joined the Network Intelligence Alliance to facilitate the integration and deployment of network intelligence technology in new, innovative solutions for improving the performance, security and monetization of communications networks.

Design and Manufacturing Services

Unbridled Customization Options

Lanner creates customized hardware solutions for customer applications with managed lifecycles thanks to our in-house design and manufacturing services.



Advanced Networking Features

- Support for up to 64 network ports
- 10/100/1000/10000/40000 Mbps Ethernet
- Copper and fiber at 10GbE, 40GbE
- Lossless bypass solutions
- Faster throughput due to wider PCIe lanes, DDR3 memory and Intel architecture improvements.

Best-In-Class Port Density

Lanner has engineered unprecedented port density for 2U network appliances. Utilizing our modular or blade technology, every platform can be configured to your optimum requirements.



Engineered for Reliable Operation

With redundant power sources, hot-swappable fans, HDD trays, and LAN ports with bypass, these network appliances can be designed to continue to support your network even when disaster strikes.

The Latest and Fastest Processors

The latest Intel® Xeon®, Core™ and Atom™ processors are available to enable your appliance to crunch large amounts of data at low power, while Tiler®, Cavium®, Freescale® and Marvell® processors are available to maximize throughput in networks.



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 in industry technology 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 operate within a broad range of environmental parameters to guarantee product robustness in an array of applications.

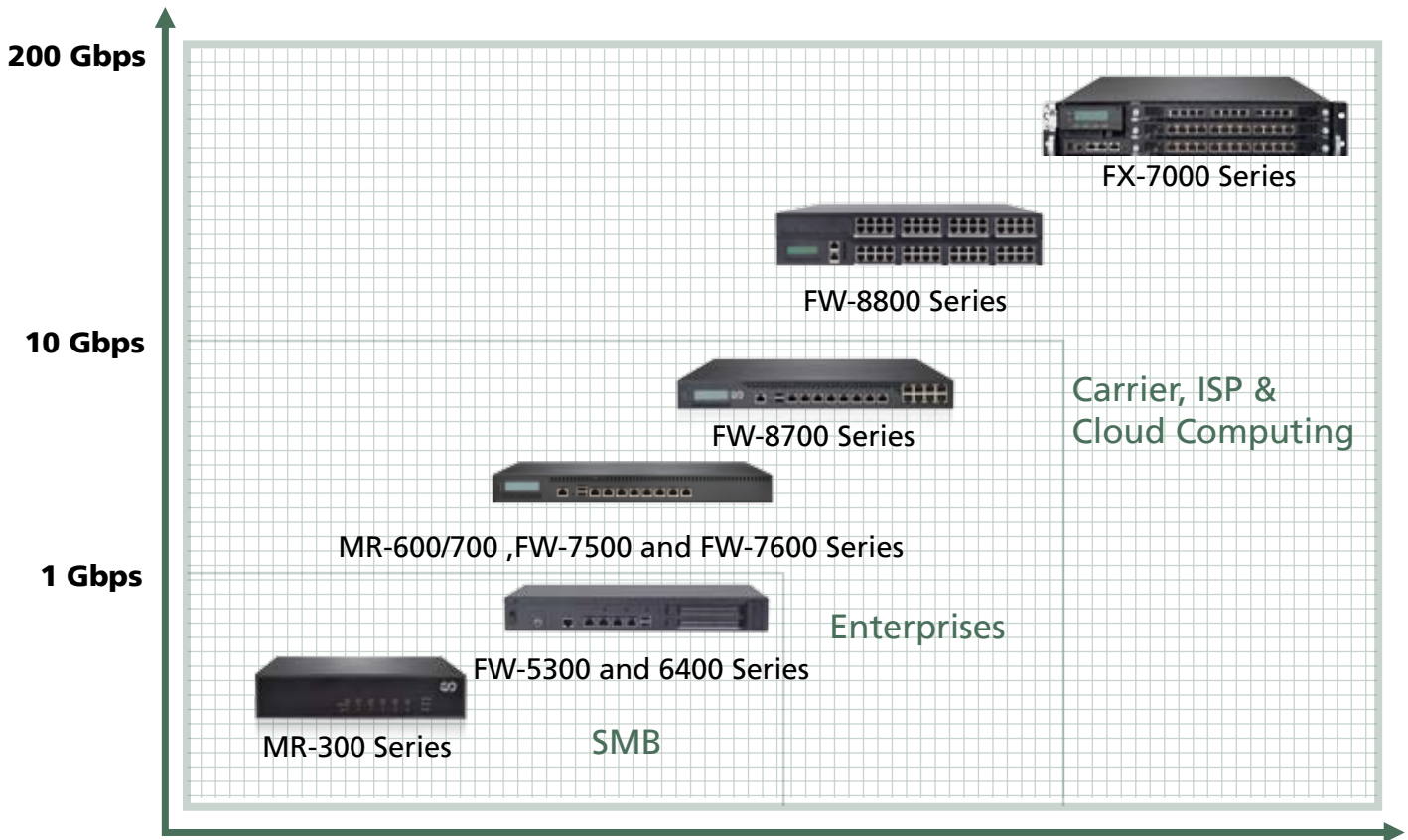


Software Engineering

Equip your platform with the necessary BIOS or firmware with the help of Lanner's software team. Our software development expertise extends from the circuit board up through the BIOS, firmware, drivers and API level, to ensure seamless communication between hardware and application software.

Lanner's Complete Range of Network Appliances

Behind the customized faceplate of many leading network appliances lies a standard Lanner network appliance. Choose from our wide range of network appliances which ranges from basic budget firewalls with onboard processors, to advanced hybrid appliances with multiple processors, several 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 ship off the shelf within a few days of first inquiry. This speeds up your product development and brings your product to the market faster.



Product Identity Support

Take advantage of Lanner's product identity support when it comes to the final touches on your product. Lanner's services include everything from industrial design of 2D and 3D faceplates to custom packaging and labeling. This ensures that your product accurately promotes your brand 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

Global Reach

With our presence in carefully selected locations, we are able to serve our customers worldwide.



A Complete Service

After we have designed and manufactured your hardware, we install the required software and ship directly to your customers in your branded box. 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 unforgiving and ISO 9001 certified quality testing procedures have been fine-tuned over 25 years. Also, as part of our green-management plan, initiated early 2006, all Lanner products currently meet RoHS certification requirements.



Logistics

Successful logistics translates into efficient execution. At Lanner, clients' projects can be tracked through the production process via a product number allowing for routine project updates. By making each product traceable, Lanner can guarantee consistency and quality.



Technical Support

Lanner provides full RMA service and technical support to round off its customer service package. And for Intel®-based systems using chipsets and CPUs from the embedded group at Intel® we offer up to 7 years lifecycle support. Longer lifecycles can also be arranged by jointly planned inventories.

x86 Network Appliances (FW Series)



- 8 Ethernet Modules



- 4 Ethernet Modules + 4 HDD Bays

FW-8895



- Redundant Power



- 4 Modular Fans



- 16 DDR3 DIMM



- Cavium Nitrox CN1620

Introduction to the FW Series

Lanner's FW Series of x86 network appliances are known worldwide for reliability and flexibility. Industry leaders in enterprise firewalls, UTM, WAN optimization, application delivery, and other information security industries have used the FW series for their hardware requirements for over a decade.

FW-8800 Series

The FW-8800 Series consists of rackmounted 1U and 2U network appliances with very powerful processors such as the x86 Intel® Xeon® processors, for demanding network applications. There are also extra redundancy features like hot-swappable system fans, HDD trays and multiple Ethernet module bays for flexible port configuration.

The FW-8800 series is popular for DDoS, enterprise UTM, enterprise firewalls, intrusion prevention systems (IPS), application delivery and WAN optimization.



FW-8865



FW-8700 Series

The FW-8700 Series consists of rackmounted 1U network appliances with one Ethernet module bay and a mid-range x86 Intel® processor. This is a popular platform for UTM, firewalls, VPN, IPS and WAN optimization.

FW-7500 Series

The FW-7500 Series consists of desktop and 1U rackmount network appliances with entry-level x86 Intel® processors. This is suitable for SMB UTM, firewalls, VPN, IPS and WAN optimization.

The small form factor of the desktop models in the FW-7500 Series enable easy deployment where rack space is insufficient. There is enough processing power to run barebones network security and communication applications, and ultra-low electricity consumption means an environmentally-friendly appliance with a low thermal foot print.

Data Processing Modules

The performance, power efficiency, high density and programmability of the Tilera® TILE-Gx™ processor provides the flexibility to integrate more services at a higher bandwidth without sacrificing the power budget and time to market. Lanner's NCS-MRXTGX36 NPU card uses Tilera's TILE-Gx™ processor, a high-performance, high-density PCIe platform in a module type NPU board. The massive computing power of the TILE-Gx36™ processor is complimented with 40 Gbps of Ethernet I/O. This NPU board can be installed on Lanner's FW-8895 platform.



Wind River

The Wind River USB development kit is designed for FW-8895, providing a suite of tools to help you get started, and allowing you 30 days to evaluate Intel®'s DPDK. Wind River also provides written and video tutorials and a 2-day DPDK training course. The combination of the FW-8895 and the Wind River Development Kit offers the fastest development path for those that wish to leverage Intel®'s DPDK.

Intel® DPDK

Intel® DPDK improves throughput by 3 to 4 times on the Intel® multi-core processor architecture. Lanner has developed Intel® DPDK-based hardware as well as software components that allow both software vendors and application developers to accelerate network packet processing performance. We provide driver support to entry level chips such as 82583 and 82574L that are not supported by Intel®'s poll mode driver, and we provide application examples for writing the software to acquire data from Intel®'s DPDK instead of the Linux kernel.

Bypass

Bypass ports allow uninterrupted network traffic even if a single in-line appliance is shut down or hangs. Lanner's engineers have improved on standard bypass functionality to provide higher reliability and greater control.

LAN Bypass Gen 1-3 Comparison	Gen 1	Gen 2	Gen 3
No Hardware Jumper required to enable Bypass	No	Yes	Yes
Remote Bypass Control	No	Yes	Yes
Multiple watchdogs dedicated for different bypass pairs	No	No	Yes
Bypass control in 3 distinct states: power-on, just-on and system off	No	No	Yes
No packet loss if bypass is enabled during system just-on state	No	No	Yes
Bypass implementation independent of Intel architecture platform of the host system	No	No	Yes

The product comparison tables in this guide which generation of bypass is supported by which models. For more information on Lanner's advanced bypass technology, please see our white paper 'The Evolution of LAN Bypass Technology: Lanner's Generation One to Generation Three Bypass.'

Lanner Intel-based NIC Modules

Grow the performance and bandwidth of your network appliance according to your needs with these front-facing and easily swapped modules. Choose from over 20 different Ethernet network modules, including RJ-45 copper, fiber, bypass and speeds from 1GbE to 10Gbps. For an overview of the NCM modules for the 8800 and 8700 Series, see page 15.

NCS-IGM806AB:
Slim type 8-port Copper GbE Module



Hot-Swappable System Fans

Hot-swappable technology is vitally important to the networking industry, where downtime is costly and tarnishes reputations. Fans are usually the first thing to fail in any computer or dedicated appliance due to their mechanical nature and constant use. Many Lanner appliances have a series of fans along the back face that cool the entire system. When one of these fans fails, network technicians can replace it easily with Lanner's hot-swappable fans.



Redundant Power Supplies

Many top-of-the-line network appliances utilize dual power supplies to ensure a constant flow of power. These appliances need to run 24 hours a day, 7 days a week, 52 weeks a year and every failure, no matter the length of time is equal to lost dollars. So smart network maintenance experts utilize dual power supplies, often attached to different sources of power to make sure these appliances never fail.



Support for Acceleration Cards

By using the PCI slot you can install one of the many Lanner acceleration cards with Cavium® network processors. This provides high-performance tunneling and encryption for services like VPN. See page 16 for an overview.

Cavium® Nitrox Security Acceleration Processor

Depending on the SKU chosen, Lanner network appliances may come with the optional Cavium® Nitrox® CN1620 security acceleration processor. The Cavium® Nitrox® making it the perfect solution for applications such as integrated VPN/Firewall appliances, load balancers, WAN optimization, application delivery controller, UTM gateway and server offload.



Intel® Xeon® CPU

The Intel® Xeon® processor series provides Intel® Virtualization Technology for flexible virtualization, as well as Intel® QuickPath Technology, Intel® Turbo Boost Technology and Intel® Hyper-Threading Technology.



Remote Manageability

With Lanner's IPMI add-on card, network appliances can be managed at a central location. Remotely configure, install, reboot and shut down through firewalls and NATs. The card features SSL encryption, and comes with an SDK so you can create a custom management console for your appliance.



IPMI Cards

x86 Selection Guide for FW-6400 and 7500 Series



Feature	Description	FW-5330	FW-6432	FW-6436	FW-6486
Form Factor		Desktop	Desktop	Desktop	1U Rackmount
Platform	Processor Options	AMD® T24L 1G on board	VIA ULV TC500 500 MHz on board	VIA ULV TC500 500 MHz or VIA C7 1.5 GHz on board	VIA C7 1.5 GHz on board
	Chipset	AMD® A50M	VIA VX900	VIA VX900	VIA VX900
BIOS		AMI BIOS 8Mbit SPI Flash ROM	AMI BIOS 8Mbit SPI Flash ROM	AMI BIOS 8Mbit SPI Flash ROM	AMI BIOS 8Mbit SPI Flash ROM
System Memory	Technology	DDR3 1066 MHz	DDR3 1066 MHz	DDR3 1066 MHz	DDR3 1066 MHz
	Max. Capacity	4GB	512MB	4GB	4GB
	Socket	1 x 204P SO-DIMM	on board	1 x 204P SO-DIMM	1 x 204P SO-DIMM
OS Support		Linux Kernel	Windows 2000, 2003, XP, 7. Linux kernel, OpenBSD, FreeBSD	Windows 2000, 2003, XP, 7. Linux kernel, OpenBSD, FreeBSD	Windows 2000, 2003, XP, 7. Linux kernel, OpenBSD, FreeBSD
Storage	HDD Bays	1 x 2.5" HDD (Optional)	N/A	1 x 2.5"	1 x 2.5" or 1 x 3.5"
	Compact Flash	1 x Type II CompactFlash / CF SATA support	1 x Type II CompactFlash	1 x Type II CompactFlash	1 x Type II CompactFlash
Networking	Ethernet Ports	4 x GbE RJ-45 (FW-5330A) 2 x GbE RJ-45 (FW-5330B)	4 x GbE RJ-45	4 x GbE RJ-45	4 x GbE RJ-45
	Bypass	N/A	N/A	N/A	N/A
	Controllers	4 x Realtek RTL8111E or 2 x Realtek RTL8111E	4x Realtek RTL8111E	4x Realtek RTL8111E	4x Realtek RTL8111E
	Ethernet Modules	N/A	N/A	N/A	N/A
	Management Port	N/A	N/A	N/A	N/A
	Security Acceleration	N/A	N/A	N/A	N/A
I/O Interface	Reset button	1 x reset button Software reset by default	1 x reset button Software reset by default	1 x reset button Software reset by default	1 x reset button Software reset by default
	Console	1 x RJ-45	1 x RJ-45	1 x RJ-45	1 x RJ-45
	USB	2 x USB 2.0	2 x USB 2.0	2 x USB 2.0	2 x USB 2.0
	IPMI via OPMA slot	N/A	N/A	N/A	N/A
Expansion	PCIe	1 x Mini-PCIe (Reserved for ODM only)	N/A	N/A	N/A
	PCI	N/A	N/A	1 x Mini-PCI 2 x PCI slots	1 x Mini-PCI 2 x PCI slots
Cooling	Processor	Passive CPU heatsink	Passive CPU heatsink	Passive CPU heatsink	Passive CPU heatsink
	System	1 x cooling fan	Fanless	1 x cooling fan with smart fan control	1 x cooling fan with smart fan control
Environmental Parameters	Temperature, ambient operating / storage	0 ~ 40° C / -20~70° C	0 ~ 40° C / -20~70° C	0 ~ 40° C / -20~70° C	0 ~ 40° C / -20~70° C
	Humidity (RH), ambient operating / ambient non-operating	5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing
Miscellaneous	LCD Module	N/A	N/A	N/A	2 x 20 characters
	Watchdog	Yes	Yes	Yes	Yes
	Internal RTC with Li Battery	Yes	Yes	Yes	Yes
Physical Dimensions	Dimensions (WxHxD)	240 x 44 x 166 mm	240 x 30 x 165 mm	375 x 50 x 190 mm	431 x 44 x 317 mm
	Weight	1.2kg	1.2 kg	2.2 kg	4 kg
Power	Type / Watts	12V 3A 36W Power Adapter	12V 5A 60W Power Adapter	12V 5A 60W Power Adapter	1U ATX PSU / 100W
	Input	AC 100~240V @50~60 Hz	AC 100~240V @50~60 Hz	AC 100~240V @50~60 Hz	AC 100~240V @50~60 Hz
Approvals and Compliance		CE emission, FCC Class A, RoHS	CE emission, FCC Class A, RoHS	CE emission, FCC Class A, RoHS	CE emission, FCC Class A, RoHS



FW-7541	FW-7540	FW-7568	FW-7575	FW-7582	FW-7610
Desktop	Desktop / Half-rack	1U Rackmount	1U Rackmount	1U Rackmount	1U Rackmount
Intel® Dual Core D525 on board	Intel® Atom™ D425 or Dual Core D525 on board	Intel® Atom™ Dual Core D525 on board	Intel® Xeon® E3-1125C or Core i3 2115C, on board	Intel® i3-2120, i3-3220, i5-3550s, G850 and G540 on LGA1155	Intel® Celeron® 827E, 1.4GHz or Dual core 847E, 1.1GHz, on board
Intel® ICH8M	Intel® ICH8M	Intel® ICH8M	Intel® Cave Creek	Intel® H61	Intel® HM65
AMI BIOS 16Mbit SPI Flash ROM	AMI BIOS 16Mbit SPI Flash ROM	AMI BIOS 16Mbit SPI Flash ROM	EFI BIOS 64Mb	AMI BIOS 64Mbit SPI Flash ROM	AMI BIOS 32Mb SPI Flash ROM
DDR3 667/800 MHz	DDR3 667/800 MHz	DDR3 800 MHz	Dual-channel DDR3 1066/1333 MHz Non-ECC	Dual-channel DDR3 1066/1333/1600 MHz Non-ECC, Unbuffered	Dual-channel DDR3 1066/1333 MHz ECC
4 GB	4 GB	4 GB	32 GB	16GB	16GB
1 x 204P SO-DIMM	1 x 240P DIMM	1x 204P SO-DIMM	4 x 240P DIMM	2 x 240P DIMM	2 x 240P UDIMM
Windows 2000, 2003, XP, 7. Linux kernel 2.6 or above, OpenBSD, FreeBSD	Windows 2000, 2003, XP, 7. Linux kernel 2.6 or above, OpenBSD, FreeBSD	Windows 2000, 2003, XP, 7. Linux Kernel 2.6 or above, OpenBSD, FreeBSD	Linux Kernel 2.6 and up	Windows 2000, 2003, XP, 7. Linux kernel 2.6 or above, OpenBSD, FreeBSD	Windows 2000, 2003, XP, 7. Linux kernel 2.6 or above, OpenBSD, FreeBSD
1 x 2.5"	1 x 2.5" (optional)	2 x 2.5" or 1 x 3.5"	1 x 2.5" or 1 x 3.5"	2 x 2.5" or 1 x 3.5"	2 x 2.5" or 1 x 3.5"
1 x Type II CompactFlash	1 x Type II CompactFlash	1 x Type II CompactFlash	1 x Type II CompactFlash	1 x Type II CompactFlash	1 x Type II CompactFlash
6 x GbE RJ-45	4 x GbE RJ-45	6 x or 8 x GbE RJ-45	6x GbE RJ-45 by default, Max. up to 14x GbE RJ-45	6 x GbE RJ-45	8 x GbE RJ-45
1 pair G2 (FW-7541A and C)	2 pair G2.5 (SKU A and B)	2 pairs G3 (FW-7568A/C)	2 pairs G3 (SKU A and C)	3 pairs G3	2 pairs G2 (SKU A&C)
1 x Intel 82574L 5 x Intel 82583V (Optional 6x Intel 82574L)	4 x Intel 82583V (Optional 82574L)	6 x Intel 82574L 2 x Intel 82541 PI (FW-7568A/B)	1 x Intel i347-ATZ, Intel 82580DB	6 x Intel 82583V (Optional 82574L)	8 x Intel 82574L
N/A	N/A	N/A	1	N/A	N/A
N/A	N/A	N/A	1	N/A	N/A
N/A	N/A	N/A	Cave Creek QuickAccess Technology	N/A	N/A
1 x reset button Software reset by default	1 x reset button Software reset by default	1 x reset button Software reset by default	1 x reset button Software reset by default	1 x reset button Software reset by default	1 x reset button Software reset by default
1 x RJ-45	1 x RJ-45	1 x RJ-45	1 x RJ-45	1 x RJ-45	1 x RJ-45
2 x USB 2.0	2 x USB 2.0	2 x USB 2.0	2 x USB 2.0	2 x USB 2.0	2 x USB 2.0
N/A	N/A	N/A	N/A	N/A	N/A
1 x Mini-PCIe (with USB signal only)	1 x Mini-PCIe with PCI-E*1 and USB signal (optional)	1 x Mini-PCIe	1 x PCIe *8 for Ethernet module or Add-on card (optional)	1 x PCI-E*8 expansion	N/A
N/A	N/A	N/A	N/A	N/A	N/A
Passive CPU heatsink	CPU heatsink	Passive CPU heatsink	Passive CPU heatsink	CPU heatsink with fan duct	Passive CPU heatsink
Fanless or 1 x cooling fan	1 x cooling fan with fan duct	2 x cooling fans with smart fan control	3 x cooling fans with smart fan control	3 x cooling fans with smart fan control	2 x cooling fans with smart fan control
0 ~ 40° C / -20~70° C	0 ~ 40° C / -20~70° C	0 ~ 40° C / -20~70° C	0 ~ 40° C / -20~70° C	0 ~ 40° C / -20~70° C	0 ~ 40° C / -20~70° C
5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing
N/A	N/A	2 x 20 characters	2 x 20 characters	2 x 20 characters	2 x 20 characters (Optional)
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
268 x 40 x 145 mm	215.5 x 44 x 190mm	431 x 44 x 276 mm	431 x 44 x 305.8 mm	431 x 44 x 305 mm	431 x 44 x 305 mm
1.2 kg	1.2 kg	4 kg	5 kg	7 kg	4.5 kg
12V 5A 60W Power Adapter	12V 5A 60W Power Adapter	1U ATX PSU 150W	1U ATX PSU 180W	1U ATX PSU / 220W	1U ATX PSU / 150W
AC 100~240V @50~60 Hz	AC 100-240V @ 50-60Hz	AC 100-240V @ 50-60Hz	AC 100-240V @ 50-60Hz	AC 100~240V @50~60 Hz	AC 100~240V @50~60 Hz
CE emission, FCC Class A, RoHS, UL	CE emission, FCC Class A, RoHS, UL	CE emission, FCC Class A, RoHS, UL	CE emission, FCC Class A, RoHS	CE emission, FCC Class A, RoHS, UL	CE emission, FCC Class A, RoHS

x86 Selection Guide for FW-8700 and 8800 Series



Feature	Description	FW-8758	FW-8760	FW-8865
Form Factor		1U Rackmount	1U Rackmount	1U Rackmount
Platform	Processor Options	Intel® Celeron® G540, Pentium® G850, G2120, Core™ i3-3220, i5-3550s, i7-3770 on LGA1155	Intel® Core™ i3/i5/i7, on LGA 1156	Intel® Xeon® E3, Intel Core™ i3, G850, G540 on LGA1155
	Chipset	Intel® H61	Intel® 3450	Intel® C206
BIOS		AMI BIOS 64Mbit SPI Flash ROM	AMI BIOS 16Mbit SPI Flash ROM	AMI BIOS 64Mbit SPI Flash ROM
System Memory	Technology	Dual-channel DDR3 1066/1333/1600MHz, Unbuffered, Non-ECC	Dual-Channel DDR3 1066/1333MHz unbuffered, ECC or non-ECC	Dual-Channel DDR3 1066 / 1333 /1600 MHz unbuffered, ECC or non-ECC
	Max. Capacity	16 GB	16 GB	32GB
	Socket	2 x 240P DIMM	4 x 240P DIMM	4 x 240P DIMM
OS Support		Windows 2003, 2008 Server, Linux kernel 2.6 or above	Windows 2000, 2003, XP, 7. Linux kernel 2.6 or above, OpenBSD, FreeBSD	Windows 2000, 2003, XP, 7. Linux kernel 2.6 or above, OpenBSD, FreeBSD
Storage	HDD Bays	1 x 3.5" or 2 x 2.5"	1 x 3.5" or 2 x 2.5"	1 x 3.5" or 2 x 2.5"
	Compact Flash	1 x Type II CompactFlash	1 x Type II CompactFlash	1 x Type II CompactFlash
Networking	Ethernet Ports	6 x GbE RJ-45 onboard 14 GbE ports maximum	8 x GbE RJ-45 onboard 16 GbE ports maximum	4 x GbE RJ-45 default 20 GbE ports maximum
	Bypass	3 pairs G3	4 pairs G2	2 pairs G3
	Controllers	6 x Intel 82583V (Optional 82574L)	8 x Intel 82574L	4 x Intel 82574L or 2 x Intel i350
	Ethernet Modules	1	1	2
	Management Port	N/A	N/A	1 x GbE RJ-45
	Security Acceleration	N/A	N/A	N/A
	I/O Interface	Reset button	1 x reset button Software reset by default	1 x reset button Software reset by default
	Console	1 x RJ-45	1 x RJ-45	1 x RJ-45
	USB	2 x USB 2.0	2 x USB 2.0	2 x USB 2.0
	IPMI via OPMA slot	N/A	N/A	Optional
Expansion	PCIe	1 x PCI-E*8 golden finger for Ethernet module or expansion slot (optional)	1 x PCI-E*8 expansion or 2x PCI-E*4 (optional)	1 x PCI-E*4 expansion
	PCI	N/A	1 x Mini-PCI	1 x Mini PCI
Cooling	Processor	CPU heatsink with fan duct	CPU heatsink with fan duct	CPU heatsink with fan duct
	System	4 x cooling fans with smart fan control	4 x cooling fans with smart fan control	4 x cooling fans with smart fan control
Environmental Parameters	Temperature, ambient operating / storage	0 ~ 40° C / -20~70° C	0 ~ 40° C / -20~70° C	0 ~ 40° C / -20 ~ 70° C
	Humidity (RH), ambient operating / ambient non-operating	5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing
Miscellaneous	LCD Module	2 x 20 characters	2 x 20 characters	2 x 20 character
	Watchdog	Yes	Yes	Yes
	Internal RTC with Li Battery	Yes	Yes	Yes
Physical Dimensions	Dimensions (WxHxD)	431 x 44 x 415 mm	431 x 44 x 395 mm	431 x 44 x 550 mm
	Weight	8.2 kg	8.2 kg	12 kg
Power	Type / Watts	1U ATX 220W Single PSU or 1U ATX 275W Redundant PSU	1U ATX PSU / 220 W	1U ATX PSU / 270W or 1U ATX redundant 275W each
	Input	AC 100~240V @50~60 Hz	AC 100~240V @50~60 Hz	AC 100~240 V @50~60Hz
Approvals and Compliance		CE emission, FCC Class A, RoHS, UL	CE emission, FCC Class A, RoHS	CE emission, FCC Class A, RoHS



FW-8875	FW-8892	FW-8893	FW-8895
1U Rackmount	2U Rackmount	1U Rackmount	2U Rackmount
Intel® Xeon® 5500/5600 on LGA 1366	2 x Intel® Xeon® 5500/5600 on LGA 1366	2 x Intel® Xeon® E5-2600 Series up to 95W on LGA2011	2 x Intel® Xeon® E5-2600 series on LGA2011
Intel® 5520 + ICH10R	Intel® 5520 + ICH10R	Intel® Cave Creek	Intel® C600 series
AMI BIOS 32Mbit SPI Flash ROM x 2	AMI BIOS 32Mbit SPI Flash ROM	AMI BIOS 64Mbit SPI Flash ROM	AMI BIOS 64Mbit SPI Flash ROM
Triple-Channel DDR3 800/1066/1333 MHz, Registered ECC or unbuffered, ECC or non-ECC	Triple-Channel DDR3 800/1066/1333 MHz, Registered ECC or unbuffered, ECC or non-ECC	Quad-channel DDR3 1066/1333/1600 MHz RDIMM or UDIMM, Support ECC	Quad-channel DDR3 1333/1600 MHz, Registered ECC or unbuffered, ECC or non-ECC
24GB	48GB	128GB	128GB
6 x 240P DIMM	12 x 240P DIMM	16 x 240P DIMM	16 x 240P DIMM
Windows 2000, 2003, XP, 7. Linux kernel 2.6 or above, OpenBSD, FreeBSD	Windows 2000, 2003, XP, 7. Linux kernel 2.6 or above, OpenBSD, FreeBSD	Linux Kernel 2.6 or above	Windows 2003/2008 Server, Linux kernel 2.6 or above
2 x 2.5"	4 x 3.5" Removeable HDD Trays	1 x 2.5"	2 x 3.5" SATA HDD or 4 x 3.5" SATA HDD
1 x Type II CompactFlash	1 x Type II CompactFlash	1 x Type II CompactFlash	1 x Type II CompactFlash
4 x GbE RJ-45 default 20 GbE ports maximum	No ports on board 24 GbE ports maximum	14 x GbE RJ-45 default 6 GbE 10G SFP+ Cage	1 x GbE RJ-45 65 GbE ports maximum
2 pairs G2 (default) Module Bypass support depends on it's specifications	Module Bypass support depends on it's specifications	2 pairs G3	Module Bypass support depends on it's specifications
2 x Intel 82571EB	N/A	4 x Intel 82574 or 2 x Intel 82580DB	1 x Intel 82574L
2	3	N/A	8 or 4
N/A	Optional	2 x GbE RJ-45	1 x GbE RJ-45
Cavium CN1620 (optional)	Cavium CN1620 (optional)	Intel Acceleration Technology	Cavium CN1620 (optional)
1 x reset button Software reset by default	1 x reset button Software reset by default	1 x reset button Software reset by default	1 x reset button Software reset by default
1 x RJ-45	1 x RJ-45	1 x RJ-45	1 x RJ-45
2 x USB 2.0	2 x USB 2.0	2 x USB 2.0	2 x USB 2.0
N/A	N/A	Optional	Optional
1 x PCI-E*8 expansion (optional)	1 x PCI-E*8 expansion or 2x PCI-E*4(optional)	2x PCI-E*16 interface by ZD connector reserved for the custom model in 2U form factor	1 x PCI-E*8 expansion (optional)
1 x Mini PCI	N/A	N/A	N/A
CPU heatsink with fan duct	CPU heatsink with fan duct	CPU heatsink with fan duct	CPU heatsink with fan duct
4 x independent hot-swappable cooling fans with smart fan control	6 x independent hot-swappable cooling fans with smart fan control	4x cooling fans	4 x independent hot-swappable cooling fans with smart fan control
0 ~ 40° C / -20 ~ 70° C	0 ~ 40° C / -20 ~ 70° C	0 ~ 40° C / -20 ~ 70° C	0 ~ 40° C / -40~70° C
5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing
2 x 20 characters	128 x 32 Graphic LCM	128 x 64 Graphic LCM	2 x 20 characters (Graphic optional)
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
431 x 44 x 520 mm	442 x 88 x 660 mm	440 x 44 x 550 mm	444 x 88 x 600 mm
12 kg	22 kg	11 kg	25 kg
1+1 ATX redundant powers 400W/each	1+1 ATX redundant powers 500W/each	1+1 ATX redundant powers 650W/each	1+1 ATX redundant powers 600W/each
AC 90~264V @47~63 Hz	AC 90~264V @47~63 Hz	AC 90~264V@47~63Hz	AC 90~264V @47~63 Hz
CE emission, FCC Class A, RoHS	CE emission, FCC Class A, RoHS	CE emission, FCC Class A, RoHS	CE emission, FCC Class A, RoHS, UL

Intel-based NIC Modules



Wide Module	Ports	Chipset	Bypass	FW-8892	FW-8875	FW-8865	FW-8760	FW-8758	FW-7575
GbE Copper Modules									
NCM-IGM201A/B	2	Intel® 82574L	1 Pair G2/N/A	V	V	V	V	V	
NCM-IGM401A/B	4	Intel® 82574L	2 Pairs G2/N/A	V	V	V	V	V	
NCM-IGM403A/B	4	Intel® 82576EB	2 Pairs G2/N/A	V	V	V	V	V	V
NCM-IGM404A/B	4	Intel® 82576EB	2 Pairs G2/N/A	V	V				
NCM-IGM425A/B	4	Intel® 82580DB	2 Pairs G3/N/A	V	V				
NCM-IGM425C/D	4	2 x Intel® i350-AM2	2 Pairs G3/N/A	V	V				
NCM-IGM801A/B	8	Intel® 82574L	2 Pairs G2/N/A	V	V	V	V	V	V
NCM-IGM802A/B	8	Intel® 82576EB	2 Pairs G2/N/A	V	V	V	V	V	V
NCM-IGM804A/B	8	Intel® 82580EB + Intel® i350	4 Pairs G3/N/A	V	V				
NCM-IGM807A/B	8	2 x Intel® i350-AM4	4 Pairs G3/N/A	V		V	V	V	V
GbE Fiber Modules									
NCM-ISM202A	2	Intel® 82576EB	Yes	V	V		V	V	
NCM-ISM403A	4	Intel® 82580DB	N/A	V	V				
NCM-ISM404A	4	Intel® 82576EB	N/A		V				
NCM-ISM406A	4	1 x Intel® i350-AM4	N/A			V		V	V
NCM-ISM801A	8	Intel® 82576EB	N/A	V		V	V	V	V
10GbE Copper Modules									
NCM-ITM202A NEW	2	Intel® X540	N/A	V		V	V		V
10GbE Fiber Modules									
NCM-IXM202A	2	Intel® 82599ES	Yes	V	V	V	V		V
NCM-IXM203A	2	Intel® 82599ES	N/A	V	V	V		V	V
NCM-IXM401A	4	Intel® 82599ES	N/A	V	V				

Slim Module	Ports	Chipset	Bypass	FW-8895
GbE Copper Modules				
NCS-IGM427A	4	Intel® Cave Creek	2 Pairs G3	V
NCS-IGM427B	4	Intel® Cave Creek	N/A	V
NCS-IGM806A	8	2 x Intel® i350-AM4	4 Pairs G3	V
NCS-IGM806B	8	2 x Intel® i350-AM4	N/A	V
NCS-IGM808A NEW	8	Intel® i210AT	4 Pairs G3	V
NCS-IGM808B NEW	8	Intel® i210AT	N/A	V
GbE Fiber Modules				
NCS-ISM405A	4	1 x Intel® i350-AM4	Yes	V
NCS-ISM406A	4	1 x Intel® i350-AM4	N/A	V
NCS-ISM802A	8	2 x Intel® i350-AM4	N/A	V
10GbE Copper Modules				
NCS-ITM202A NEW	2	Intel® X540	N/A	V
10GbE Fiber Modules				
NCS-IXM204A	2	Intel® 82599ES	N/A	V
NCS-IXM205A	2	Intel® 82599ES	1 Pair G3	V
NCS-IXM405A	4	Intel® 82599ES	N/A	V

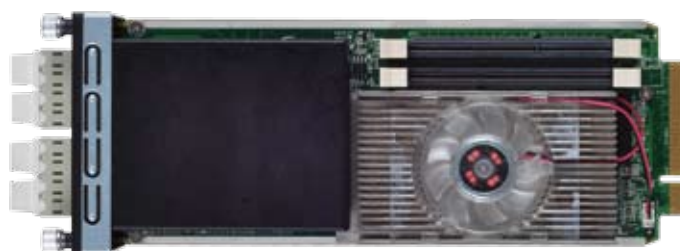
Network Processing Cards

Lanner offers a selection of add-on cards to offload the most demanding packet processing to processors that are specifically designed for this task. In addition to the standard cards listed here, we also produce custom designed cards and modules.

Packet Processing Cards

NCS-MRXTGX36A

Based on the Tileria® TILE-Gx36 processor, this module can be used with all Lanner appliances equipped with NIC module slots. While the x86 processor of the appliance takes care of the application, there is a powerful 36-core TILE-Gx processor in this module so packet processing for tasks such as DPI, IDS/IPS and cryptography can be offloaded. By using appliances with multiple NIC module slots, more packet processing cores can be added. With a system such as FW-8895, you can add up to 8 modules for a total of 288 packet processing cores.



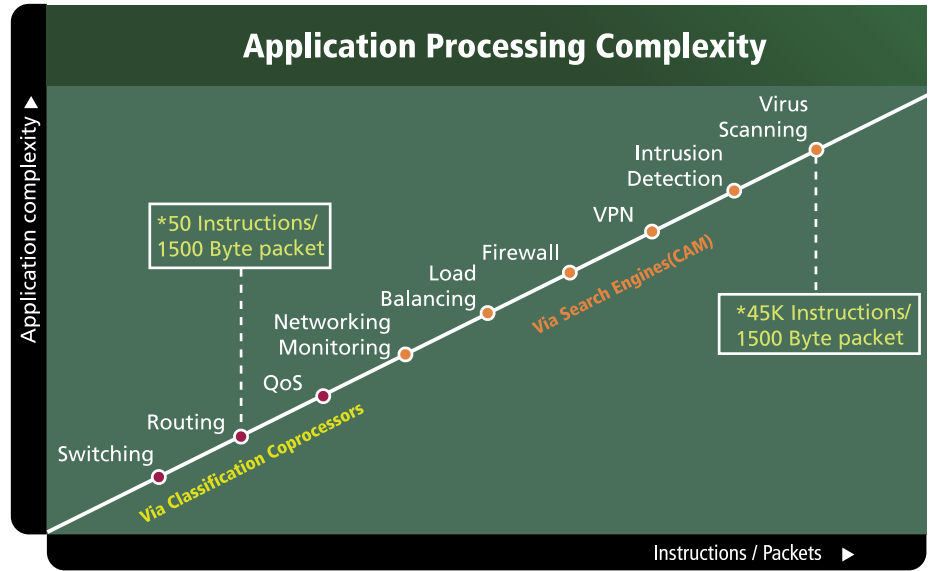
Processor / Cache	
Processor	Tileria Tile GX-36 1.2GHz CPU <ul style="list-style-type: none"> • 36 cores • 9MB coherent cache
Network Engine	2 x MICA engines
Memory	
System Memory	<ul style="list-style-type: none"> • Support 2 DIMM DDR3 ECC 1333/1600MHz (vertical socket) • Support ECC DIMMs • 8GB Maximum capacity
On Board Devices	
Flash	<ul style="list-style-type: none"> • 1 x Serial flash for boot loader • 1 x SPI ROM
Network Controllers	1 x BCM8747 Quad ports 10G PHY
I/O Connectors	
USB	1 x Internal USB pin header
Serial Port/Header	1 x Internal 1x3 pin header console pin header
LAN port	4 x 10GbE LC Fiber port
LAN Bypass	Fiber Bypass
PCB & Dimensions	
Physical Dimensio	PCB: 193mm x 95mm
PCB Layer	14 Layers

VPN Acceleration Cards

Our VPN accelerator cards provide high-performance tunneling and encryption services suitable for site-to-site and remote access applications. This hardware-based VPN acceleration is optimized to handle the repetitive but voluminous mathematical functions required for IPsec. Offloading encryption functions to the card not only improves IPsec encryption processing, but also maintains high-end firewall performance.

As an integral component of many high-end VPN and UTM appliances, Lanner VPN cards can be integrated onto the motherboard.




Dedicated VPN and L7 accelerator cards offload CPU resources and improve total application performance



VPN accelerator Card	AV-CVE2500	AV-CVE10000	AV-CVE20000	AV-CVE25000	AV-ICE01
VPN Engine	Cavium® CN1620	Cavium® CN1620 x 4	Cavium® CNN3550 x 1	Cavium® CNN3550 x 4	Intel® Cave Creek 8910 Series
Throughput	2.5Gbps	10Gbps	20Gbps	80Gbps	Up to 10Gbps
Form Factor	PCI-E x4	PCI-E x4	PCI-E x8	PCI-E x8	PCI-E x8
Interface	PCI Express	PCI Express	PCI Express	PCI Express	PCI Express
IPSec Operation	<ul style="list-style-type: none"> IPSec ESP and AH transforms Encrypt/decrypt and hash operations Public Key operations Random Number Generation operations 	<ul style="list-style-type: none"> IPSec ESP and AH transforms Basic encrypt/decrypt and hash operations Public Key operations Random Number Generation operations 	<ul style="list-style-type: none"> IPSec, SSL, TLS 1.2, DTLX, ECC Suite B DES/3DES, ARC4, AES 256-bit MD5, SHA-1, SHA-2, MAC-MD5/SHA-1/SHA-2, HMAC-MD5/SHA-1/SHA-2 RSA 2048, RSA 4096, Diffie-Hellmen, KASUMI 	<ul style="list-style-type: none"> IPSec, SSL, TLS 1.2, DTLX, ECC Suite B DES/3DES, ARC4, AES 256-bit MD5, SHA-1, SHA-2, MAC-MD5/SHA-1/SHA-2, HMAC-MD5/SHA-1/SHA-2 RSA 2048, RSA 4096, Diffie-Hellmen, KASUMI Compression/Decompression: DEFLATE, LZS 	<ul style="list-style-type: none"> IPSec, SSL, TLS 1.2, DTLX, ECC Suite B DES/3DES, ARC4, AES 256-bit MD5, SHA-1, SHA-2, MAC-MD5/SHA-1/SHA-2, HMAC-MD5/SHA-1/SHA-2 RSA 2048, RSA 4096, Diffie-Hellmen, KASUMI Compression/Decompression: DEFLATE, LZS
Power consumption	Less than 5W	Max. 10W	Max. 20W	Max. 90W	11W
Driver Support	Linux, FreeBSD, VxWorks,	Linux, FreeBSD, VxWorks, Windows	Linux, FreeBSD, VxWorks,	Linux	Linux


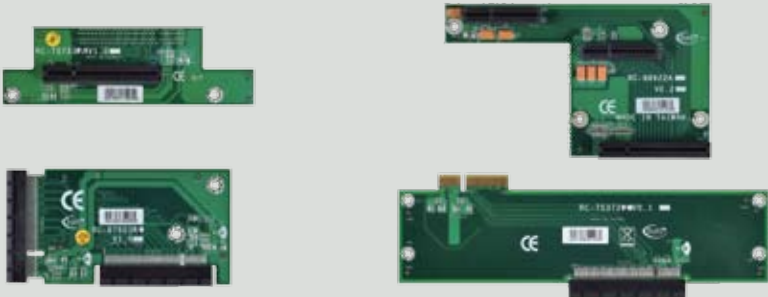
Note: All these cards are specific to Lanner network appliances.

Common Accessories

Name	Part Number	Compatibility
OPMA VGA Card	IAC-MVGA02	FW-7575, FW-8895, FW-8893
IPMI Card	IAC-AST2300 	FW-8865, FW-8895, FW-8893, FX-7220
1U Slide Rail	PN9NSFH42Z10D	FW-7575, FW-8760, FW-8756, FW-8865, FW-8758, FW-8875
2U Slide Rail	PN9NSFK33Z100	FW-8892
1U Slide Rail	098W000300001	FW-8893
2U Slide Rail	PN9NSFAIOZ100	FW-8895
PSU module (1U/2U/AC/DC)	 2U PSU module  1U PSU module	

Note: Accessories change frequently. Please confirm part numbers before ordering to make sure you get the newest version.

Other Accessories

Name	Description
Development Kit	For development purposes, you can order VGA cables, K/M cables and console cables. Different models have different part numbers. 
PSU	Each appliance has its own power supply, please contact Lanner sales for details.
PCI-E Riser Cards	Each appliance has its own riser card, please contact Lanner sales for details. 

From Firewalls to UTM and Next Generation Firewalls

Introduction

Firewalls have long been a common commodity. A US-based company that saw this trend early is one of Lanner's valued partners today. With nearly a decade of cooperation between Lanner and this company, Lanner has been very influential in developing this company's position as the leader in universal threat management and next-generation firewalls. Based on three generations of cooperatively-designed firewalls and fueled by both cost and technology advantages this company has climbed to the top of their field with Lanner's help.

The Challenge

As with most companies in the network security industry, the company was facing increasing costs and were looking to reduce some of its operating expenses by outsourcing the hardware design. It was also becoming pressing to bring products to market faster.

The Solution

The product development team at the company met with Lanner's representatives at a trade show and realized that one of the hardware designs displayed in the Lanner booth was ideal for one of their planned products. A contract was signed to use Lanner hardware for their new product, and the results were so impressive that for the second generation of products, Lanner was used for several models.

Fast forward eight years, and the customer is now working closely with Lanner on the 3rd generation of products. After years of cooperation products ranging from basic firewalls for small businesses to next-generation firewalls for the enterprise market have been developed on both x86 and RISC platforms.

The key benefit has been reduced costs by being able to use Lanner-designed hardware. The customer has been able to reduce over 95% of staffing levels in hardware design, and now co-designs new hardware with Lanner. This often means creating hardware platforms that can be shipped with different software solutions and therefore end up as 4 or 5 different SKUs. Through the co-designing process, the customer is able to minimize the number of different hardware models required to offer the number of SKUs that the market needs.

During the product development process the customer can get access to multiple chipsets and processor technologies and can test all of these to compare results and find the optimum hardware for their platform. Since Lanner is an Associate Member in the Intel® Intelligent Systems Alliance the customer gets early access to Intel® chipsets and can test before chipsets launch. When Intel® officially launches a new technology, Lanner customers can launch a product based on this technology on the same day.

In Lanner's factory the customer has a custom setup that can carry out extensive testing. This testing includes not only hardware, but also software. In a completely automated process, test results go directly from the testing laboratory to the customer. With all tests stored and linked to unique product identity numbers, the customer can review earlier test results if a product experiences issues.

The Result

As the relationship between Lanner and the customer developed over the years, the customer eventually reduced their hardware design staffing levels by over 95%. This contributed to create a cost advantage that has made the customer extremely competitive. New product generations are co-designed, with rights to the design belonging to both the customer and Lanner. This has reduced the hardware design costs even further.

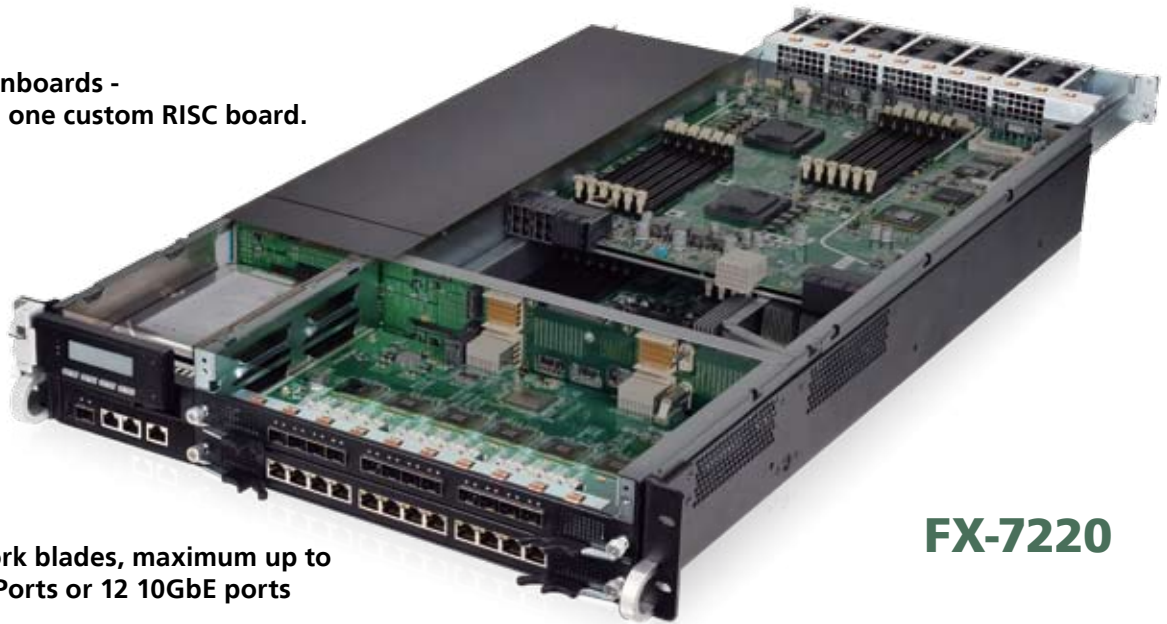
Today, products leave the Lanner warehouse 100% ready to be shipped directly to the end customer. In the future, Lanner may conduct order fulfillment for this customer, as is the case with many of our other customers.

Replace fans and power supplies
without removal from rack

Dual mainboards -
One x86, one custom RISC board.

Hinged LCM

3 network blades, maximum up to
36 GbE Ports or 12 10GbE ports



FX-7220

Introduction to the FX Series

The FX series is a group of new product lines that are designed to meet the changing requirements of today's network appliances.

Over the last few years, requirements for information security services have become a lot more complex, and the firewall industry has segmented into a number of specialized fields such as SIEM, IPS, email archiving, and others.

While most of these fields have used standard network appliance hardware in the past, there is a growing demand for custom designed hardware. This hardware should combine a variety of needed functions into a single appliance. Lanner's response to the rise of these specialized appliances is the FX series.

FX-3000 Series

The FX-3000 series offers network appliances that are especially designed for challenging security system management requirements. By combining storage

and high-end network processing capabilities in an appliance this series is the ideal platform for log management, SAN, compliance reporting, event management, real-time monitoring, and incident management.

FX-5000 Series

The FX-5000 series offers server-grade motherboards in network appliances. Although this shortens the product lifecycle, it also makes it possible to create extremely powerful network appliances.

FX-7000 Series

The FX-7000 series consist of network appliances that use Lanner's Hybrid Telecommunications Computing Architecture (HTCA). HTCA was created to meet the requirements for higher computing power in carrier-grade communications equipment, and offers an alternative to the older ATCA specification. The specification incorporates high-speed interconnect technologies, next-generation processors, and solid reliability, availability and serviceability (RAS) features.

FX-3210

2U rackmount appliance with support for Intel® Sandy Bridge / Ivy Bridge processors and Intel C206 chipset



Intel® 2nd and 3rd generation Processors support

The FX-3210 is compatible with both 2nd and 3rd generation Intel® Xeon® and Core™ processors. The 3rd generation Intel® Core™ processor is the first 22nm CPU in the market, delivering increased performance with lower power consumption, and also enabling multiple enhancements to connectivity, responsiveness and security.

Solid Expansion Capabilities

The FX-3210 is also equipped with four 3.5" HDD bays for large capacity storage drives. These are in addition to the CompactFlash slot.

Lanner NIC Modules

Lanner's unique modular design allows you to mix and match networking ports to suit your needs. Choose from 8 NIC modules including RJ-45 with bypass, fiber bypass and 10GbE modules. Two optional 8-port NIC modules can be fitted to the FX-3210, making available a total of 20 LAN ports.

Redundant Power Supplies

Having dual power supplies allows some redundancy protection for users that have highly sensitive networks. For maximum effectiveness, these power supplies should be connected to different sources of electricity (i.e. wall socket and battery).

Specifications

Form Factor		2U Rackmount
Platform	Processor Options	Intel® Sandy Bridge/Ivy Bridge processor in LGA 1155 package
	Chipset	Intel® C206 series chipset Cougar Point PCH
BIOS		AMI BIOS
System Memory	Technology	DDR3 1333/1600 SDRAM, ECC or non-ECC
	Max. Capacity	32GB
	Socket	4 Dimm socket from 2 channel
OS Support		Linux kernel
Storage	HDD Bays	3.5" HDD x 4 (HDD Tray x4)
	Flash	Compact Flash Type II Socket x 1
Networking	Ethernet Ports	4 x GbE RJ-45 default 20 GbE ports maximum
	Bypass	2 Pairs G3
	Controllers	2 x Intel i350
	Ethernet Modules	2
	Management Port	1 x GbE RJ-45
	Security Acceleration	N/A
	Reset Button	1 x Reset button (Software Reset)
I/O Interface	Console	1 x RJ-45
	USB	2 x USB 2.0
	IPMI via OPMA slot	Optional
Expansion	PCIe	2 x PCI-E * 8 (via 1 x PCI-E * 4 signal)
	PCI	N/A
Cooling	Processor	2U CPU heat-sink
	System	3 x 13000rpm System 2U Fan
Environmental Parameters	Temperature, ambient operating / storage	0 ~ 40° C / -20~70° C
	Humidity (RH), ambient operating / ambient non-operating	5~90%, non-condensing
Miscellaneous	LCD Module	2 x 20 characters
	Watchdog	Yes
	Internal RTC with Li Battery	Yes
Physical Dimensions	Dimensions (WxHxD)	444 x 550.2 x 87.8 mm
	Weight	20 kg
Power	Type / Watts	350W AC Redundant Power Supply
	Input	100~240V ~ 5-3A, 60-50Hz
Approvals and Compliance		CE, FCC Class A

FX-5220

High performance 2U network security platform with four CPUs

Intel® Xeon® E5-4600 Series Processor

The Intel® Xeon® processor E5-4600 series represents the largest performance leap in the Xeon® family history, with the chip being an average of three times faster across a range of benchmarks.

With up to eight times the memory bandwidth of the Intel® Xeon® processor E5-4600 series and four times the memory capacity with 16 memory slots per processor, the Xeon® E5-4600 series can support one terabyte (or 1,000 gigabytes) of memory in a four-socket platform.

This is also the first Xeon® processor to possess Machine Check Architecture (MCA) Recovery, a feature that allows the silicon to work with the operating system and virtual machine manager to recover from otherwise fatal system errors.

Multiple CPU Support

The FX-5220 supports four Xeon® E5-4600 processors and each processor supports four full-width Intel® QuickPath Interconnect (QPI) links supporting up to 25.6 GT/s per QPI link and with a data transfer rate of up to 6.4 GT/s per direction.

Intelligent Platform Management Interface

With Lanner's IPMI add-on card, network appliances can be managed from a central location. Remotely configure, install, reboot, and shut down through firewalls and NATs. The card features SSL encryption, and comes with an SDK so you can create a custom management console for your appliance.

PCI-E Slot for LAN modules

The FX-5220 is equipped with 3 x PCI-E x 8 for Lanner's NCM NIC Modules.



Specifications

Form Factor		2U Rackmount
Platform	Processor Options	4 x Intel® Xeon® E5-4600 series Processors
	Chipset	Intel® C602
BIOS		AMI BIOS
	Technology	DDR3 1600/1333/1066/800Mhz
System Memory	Max. Capacity	256GB
	Socket	32 x 240P DIMM
OS Support		Windows, Linux Kernel
	HDD Bays	3 x 3.5"
Storage	CompactFlash	N/A
	Ethernet Ports	2 x RJ-45 GbE
Networking	Bypass	N/A
	Controllers	Intel® i350 for LAN 1/LAN 2 ports
	Ethernet Modules	3 x Optional Modules (PCI-E*8)
	Management Port	Yes
	Security Acceleration	N/A
	Console	1 x RS232
I/O Interface	USB	2 x USB 2.0
	IPMI via OPMA slot	1 x RJ-45 IPMI Management Onboard
Expansion	PCIe	3 x PCI-E x 8 slots
	PCI	N/A
Cooling	Processor	4 x 1U heatsink
	System	5 x 13000 Rpm System Fans
Environmental Parameters	Temperature, ambient operating / storage	0 ~ 40° C / -20~70° C
	Humidity (RH), ambient operating / ambient non-operating	5~95%, non-condensing
Miscellaneous	LCD Module	128 x 64 Graphic LCM
	Watchdog	Y
Physical Dimensions	Internal RTC with Li Battery	Y
	Dimensions (WxHxD)	673 x 444 x 87 mm
Power	Weight	28 kg
	Type / Watts	910W Redundant PSU
Approvals and Compliance	Input	100~240V @47~63 Hz
		CE emission, FCC Class A

FX-7220 NEW

Dual mainboard network appliance with three I/O blades and Intel® Xeon® processor

FX-7220 is based on Lanner's unique Hybrid Telecommunications Computing Architecture (HTCA), which offers an alternative to ATCA. The system integrates control, management and data processing in one system.

Two Mainboards

FX-7220 is equipped with a primary mainboard using two powerful Intel® Xeon® processor that handle core network applications, and has room for a custom secondary mainboard that is dedicated to a secondary function such as network processing.

Selection of I/O Blades

With up to three swappable I/O blades, the FX-7220 can be configured with up to 36 1GbE network ports or twelve 10GbE network ports, in an array of SFP or copper combinations. With 8 quad-channel DDR3 modules and two removable SATA hard drive bays, the FX-7220 is also easily expanded to tackle future requirements.



Redundant power supplies

Secure your network and protect your investment in the case of component failure with two high-efficiency 1200W-AC/1010W-DC power supply units.



Field-replaceable mainboard trays

Optimized Airflow Design



Primary Mainboard Specifications

Primary Mainboard	Processor	Supports two Intel® Xeon® E5-2600 series processors on LGA2011
	Chipset	Intel® C600
	System Bus	Supports Intel Quick Path Interconnect link speeds up to 8GT/s
System Memory	BIOS	AMI BIOS on 32MB Flash ROM
	Technology	Quad-channel DDR3 up to 1333 MHz
OS Support	Max Capacity	128 GB
	Socket	240P DIMM x 8
Storage	HDD Bay(s)	3.5" x 2 (removable tray)
	Storage Interface	Serial ATA 6Gb/s
Networking	Ethernet Ports	Up to 36 via 3 network blades with onboard 1 management port and 1 SFP+ dedicate port
I/O Interface	Console	RJ-45 x 1
	USB 2.0	2
	IPMI via OPMA slot	Optional

Secondary Mainboard Specifications

Contact Lanner for a custom designed mainboard that exactly matches your requirements.

Chassis Specifications

Form Factor		2U Rackmount
Cooling	Processor	1U CPU passive heatsink
	System	5 x cooling fans (swappable) with Smart Fan per mainboard
Environmental Parameters	Temperature, ambient operating / storage	0 ~55°C support CPU watt up to 95 watt 0 ~40°C support CPU watt up to 130 watt
	Humidity (RH), ambient operating and non-operating	5 ~ 95%, non condensing
Miscellaneous	LCD Module	Yes
	Watchdog	Yes
	Internal RTC with Li Battery	Yes
Physical Dimensions	Dimensions (WxHxD)	431 x 88 x 710 mm
	Weight	32 kg (48.5 lbs)
Power	Type / Watts	AC 1200 watt 1+1 Redundant /each DC 1010 watt 1+1 Redundant /each PM bus support
	Input	AC 100~240V@50~60Hz DC -36~-72V
	Output	+5V 30A, +12V 32A, +3.3V 0-24A, +3.3V 10.0A, +5V 13.0A, +12V 10.0A, +5Vsb 2.0A, -12V 0.5A
Approvals & Compliance		CE Emission, FCC Class A, UL, C-Tick, VCCI

I/O blades List

NCM-BPGC01A	12 ports GbE RJ-45	Gen 2 Bypass
NCM-BPGC01B	12 ports GbE RJ-45	Without Bypass
NCM-BPSC01A	12 ports GbE SFP	Without Bypass
NCM-BPX401A	4 ports 10G SFP+	Gen 2 Bypass
NCM-BPX402A	4 ports 10G SFP+	Without Bypass

Network Processor Platforms (MR Series)

Introduction to the MR Series

Lanner's MR Series of MIPS RISC network processing appliances use the latest processors from Cavium®, Freescale® and Marvell® for blistering network throughput performance in applications like IPS, VPN and virus scanning.

Features of MR Series

Freescale® QorIQ

The QorIQ P1 platform series CPUs allows for high levels of integration and clever power mechanics to enter a wide swath of industries including networking, telecommunications, manufacturing, maintenance, and security applications. The series allows for both single and dual core solutions in the 533MHz to 800MHz performance range with minimal power consumption.



Cavium® OCTEON

The Cavium® OCTEON® family of multi-core MIPS64 processors is a scalable, high-performance, and low-power solution for intelligent networking applications.

These software-compatible processors integrate next-generation networking I/Os along with the most advanced security, storage, and application hardware acceleration, offering throughput and programmability for the Layer 2 through Layer 7 processing requirements of intelligent networks.



Marvell®

Lanner offer products with processors from Marvell® Technology. Marvell® processors accelerates complex network traffic to significantly enhance the performance and functionality of advanced mobile and wireless infrastructure, storage, cloud services, and infrastructure networks.



Redundant Power Supplies

Many top-of-the-line network appliances utilize dual power supplies to ensure a constant flow of power. These appliances are relied on to be in operation 24 hours a day, 7 days a week, 52 weeks a year and every failure, no matter the length of time is equal to lost dollars. So smart network maintenance experts utilize dual power supplies, often attached to different sources of power to make sure these appliances do not fail.

Bypass

Bypass ports allow uninterrupted network traffic even if a single in-line appliance is shut down or hangs. Lanner's R&D have further developed basic bypass functionality to provide higher reliability and greater control.

For more information on Lanner's advanced bypass technology, please see our white paper 'The Evolution of LAN Bypass Technology: Lanner's Generation One to Generation Three Bypass.'

PCI Expansion Slots

Most MR products come with a Mini-PCI, Mini-PCIe, or PCI-X slot so that new functionality can be added. This can for example be used for VGA cards, acceleration cards with Cavium® NITROX®, or encryption cards.

Selection Guide for Network Processor Platforms



Feature	Description	MR-301	MR-320
Form Factor		Desktop	Desktop
Platform	Processor Options	Marvell® Sheeva SOC 88F6281 1.2GHz (1.5GHz Max)	Cavium® Octeon CN5020 500MHz
OS Support		Linux OS (Kernel version depends on BSP)	Linux OS (Kernel version depends on BSP)
Flash Memory	Boot Flash	512Mbit NAND Flash	64Mbit NOR Flash
	Extra Flash	N/A	N/A
System Memory	Technology	DDR2 800 MHz 512MB/1GB	DDR2 533MHz 512MB/1GB
	Max. Capacity	1GB	1GB
	Socket	Onboard	Onboard
Storage	HDD Bays	1 x 2.5"(Optional)	N/A
	CF/SD	Optional	1 x Type II CompactFlash
Networking	Ethernet Ports	5 x GbE RJ-45 switch ports 1 x GbE RJ-45 port for internal ADSL connection	2 x GbE RJ-45 ports 4 x GbE RJ-45 switch ports
	Bypass	N/A	N/A
	Controllers	Marvell® 88E6161 GbE switch Marvell® 88E1116	Marvell® 88E6161 GbE switch Marvell® 88E1111
	Ethernet Modules	N/A	N/A
	Management Port	N/A	N/A
I/O Interface	Reset button	Yes	Yes
	Console	1 x RJ-45	1 x DB9
	USB	1 x USB 2.0	1 x USB 2.0
Expansion	PCIe	Either 1 x Mini-PCIe, or 1 x PCI-E golden finger	N/A
	PCI	N/A	1 x Mini-PCI, 1 x PCI golden finger
Cooling	Processor	Passive heatsink	Passive heatsink
	System	1 x cooling fan	Passive
Environmental Parameters	Temperature, ambient operating / storage	0°C ~40°C / -20°C~70°C	0°C ~40°C / -20°C~70°C
	Humidity (RH), ambient operating / ambient non-operating	5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing
Miscellaneous	LCD Module	N/A	N/A
	Watchdog	Yes	Yes
	Internal RTC with Li Battery	Yes	Yes
Dimensions	Dimensions (WxHxD)	210 x 44 x 190 mm	240 x 30 x 155.5 mm
	Weight	1.2 kg	1.7 kg
Power	Watts / Type	60W power adapter	24W power adapter
	Input	AC 100~240V	100-240V~0.5A,50-60Hz
Approvals & Compliance		CE Emission, FCC Class A, RoHS	CE Emission, FCC Class A, RoHS



MR-326	MR-350	MR-631	MR-730
Desktop	Desktop / Half-rack	1U Rackmount	1U Rackmount
Cavium® Octeon CN6010 600MHz, 3.6W CN6020 800MHz, 6.5W	Freescale® P1011 533 MHz , Freescale® P1020 533 MHz	Freescale® P2040-1.0GHz SOC Freescale® P2041-1.2GHz SOC	Cavium® Octeon Plus CN5230-700-SCP
Linux Kernel 2.6 or above	Linux OS (Kernel version depends on BSP)	Linux kernel 2.6 or up	Linux OS (Kernel version depends on BSP)
2Mbyte NOR Flash	16Mbit NOR Flash	2Mbyte NOR Flash	128MBit NOR Flash
N/A	2048MBit NAND Flash	2Gbyte Nand Flash (Optional)	N/A
DDR3 ECC Onboard	Dual-Channel DDR3 @ 667 MHz 512MB (MR-350A) 1GB (MR-350B)	DDR3 1200 MHz DIMM with ECC support	DDR2 667 MHz
1GB	1GB	4GB	DDR2 667 support up to 4GB DDR2 800 support up to 2GB
Onboard	Onboard	2	2 x 240P DIMM
1 x 2.5" HDD (Optional)	N/A	1 x 2.5"	2 x 2.5"
1 x Type II CompactFlash	1 x SD(MR-350B)	1x Type II CompactFlash	1 x Type II CompactFlash
8 x GbE RJ45 Switch ports	5 x GbE RJ-45 switch ports	8 x GbE RJ-45	4 x GbE RJ-45/SFP combo ports
Reserved for ODM/OEM only	N/A	1 pair (SKU A)	2 pairs G2 (Copper only)
Vitesse® VSC7420e	Marvell® 88E6171R switch	VSC7420-01 Switch Marvell® 88E1111 Chip (management)	2 x Broadcom® BCM5482S 2 x Realtek® RTL8201E(management)
N/A	N/A	N/A	N/A
Yes (SKU A/B)	N/A	Yes	2 x 10/100 RJ-45 ports
Yes	Yes	Yes	Yes
1 x RJ45	1 x RJ-45	1 x RJ-45	1 x RJ-45
2 x USB 2.0	1 x USB 2.0	2 x USB 2.0	1 x USB2.0
N/A	1 x Mini-PCIe (MR-350B)	1 x PCI-E*4 golden finger	1 x Mini-PCIe
N/A	N/A	N/A	N/A
Passive heatsink	Passive heatsink	Passive heatsink	Passive heatsink
1x System fan	1 x cooling fan (MR-350B)	2 x cooling fans	2 x cooling fans
0°C ~40°C / -20°C~70°C	0 ~ 40° C / -20 ~ 70° C	0 ~ 40° C / -20 ~ 70° C	0 ~ 40° C / -20 ~ 70° C
5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing	5 ~ 90% non condensing / 5 ~ 95%, non condensing
N/A	N/A	N/A	2 x 20 characters with 4 buttons
Yes	N/A	Yes	Yes
Yes	Yes	Yes	Yes
215 x 44 x190mm	216 x 44 x 189 mm	431 x 44 x 305 mm	431 x 44 x 360mm
1.5 kg	1.2 kg	TBD	4.5~6 kg (depends on power supply)
36W power adapter	36W power adapter	150W Single Power Supply	MR-730A: 100W single ACpower MR-730B: 200W redundant AC power MR-730C: 200W single DC power
110~240V AC	110 ~ 220 V AC	AC 110~240V	MR-730A: AC 100-240V MR-730B: AC 100-240V MR-730C: DC 36-72V

CE Emission, FCC Class A, RoHS

CE Emission, FCC Class A, RoHS

CE Emission, FCC Class A, RoHS

CE Emission, FCC Class A, RoHS



Lanner is an Associate Member of the Intel® Intelligent Systems Alliance, a community of communications and embedded developers and solution providers committed to the development of modular, standards-based solutions on Intel technologies.

Intel® Intelligent Systems Alliance members provide original equipment manufacturers (OEMs) and developers with the advanced hardware, software, firmware, tools and systems integration they need to help get their designs to market faster. Alliance members get early access to roadmaps, test platforms, and design support. This helps us innovate with the latest technologies to give you first-in-market solutions you can use to stay ahead of your competition.

Lanner

Taiwan

Lanner Electronics Inc.
7F, No.173, Sec.2, Datong Rd.
XiZhi District,
New Taipei City 221, Taiwan
T: +886-2-8692-6060
F: +886-2-8692-6101
E: connect@lannerinc.com
E: marketing@lannerinc.com

USA

Lanner Electronics Inc.
41920 Christy Street
Fremont, CA 94538
T: +1-855-852-6637
F: +1-510-979-0689
E: sales_us@lannerinc.com

China

立华科技
北京市海淀区农大南路33号
厢黄旗东路兴天海园一层
T: +010-82795600
F: +010-62963250
E: service@ls-china.com.cn

Canada

LEI Technology Canada Ltd
6461 Northam Drive
Mississauga, ON, L4V 1J2
Toll_free: +1 877-813-2132
T: +1 905-362-2364
F: +1 905-362-2369
E: sales_ca@lannerinc.com

www.lannerinc.com

Please verify specifications before quoting. All product specifications are subject to change without notice. No part of this publication may be reproduced in any form or by any means, electronic, photocopying or otherwise without prior written permission of Lanner Electronics Inc. All brand names and product names are the trademarks or registered trademarks of their respective companies. (C) Lanner Electronics Inc., 2013