



THUNDER CGN PHYSICAL APPLIANCE

	THUNDER 840 CGN	THUNDER 1030S CGN	THUNDER 3030S CGN	THUNDER 3040 CGN	THUNDER 3230 CGN
PERFORMANCE					
Throughput	5 Gbps	10 Gbps	30 Gbps	30 Gbps	30 Gbps
Setups Per Second	350K	800K	1.1 Million	1.3 Million	1.8 Million
Full TCP Connections Per Second	120K	300K	437K	460K	891K
Concurrent Sessions	16 Million	32 Million	64 Million	64 Million	64 Million
Application Delivery Partitions	32	32	64	64	64
NETWORK INTERFACE					
1 GE Copper	5	6	6	6	0
1 GE Fiber (SFP)	0	2	2	2	4
1/10 GE Fiber (SFP+)	2	2	4	4	4
Management Ports	Ethernet Mgmt port, RJ-45 console port	1 x Ethernet Mgmt port, 1 x RJ-45 console port, 1 x Lights Out Management			
HARDWARE SPECIFICATIONS					
Processor	Intel Processor	Intel Xeon 4-core	Intel Xeon 4-core	Intel Xeon 4-core	Intel Xeon 4-core
Memory (ECC RAM)	8 GB	8 GB	16 GB	16 GB	16 GB
Storage	SSD	SSD	SSD	SSD	SSD
Hardware Acceleration	Software	Software	Software	Software	FTA-4
Dimensions (Inches)	1.75 (H) x 17 (W) x 12 (D)	1.75 (H) x 17.5 (W) x 17.45 (D)	1.75 (H) x 17.5 (W) x 17.45 (D)	1.75 (H) x 17.5 (W) x 17.45 (D)	1.75 (H) x 17.5 (W) x 17.15 (D)
Rack Units (Mountable)	1U	1U	1U	1U	1U
Unit Weight	8.8 lbs	18.0 lbs 20.1 lbs (RPS)	20.1 lbs	20.6 lbs	23 lbs
Power Supply (DC option available)	Single 150W (AC only)	Single 600W*	Dual 600W RPS	Dual 600W RPS	Dual 600W RPS
	100 - 240 VAC 50-60Hz	80 Plus Platinum efficiency, 100 - 240 VAC, 50 - 60 Hz			
Power Consumption (Typical/Max) ¹	57W / 75W	98W / 108W	131W / 139W	180W / 240W	190W / 240W
Heat in BTU/Hour (Typical/Max) ¹	195 / 256	334 / 369	447 / 474	615 / 819	648 / 819
Cooling Fan	Single Fixed Fan	Hot Swap Smart Fans			
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%				
Regulatory Certifications	FCC Class A, UL, CE, TUV, CB, VCCI, CCC, BSMI, RCM RoHS	FCC Class A, UL, CE, TUV, CB, VCCI, CCC, KCC, BSMI, RCM, FAC RoHS, FIPS 140-2 ^{*3}	FCC Class A, UL, CE, TUV, CB, VCCI, CCC, KCC, BSMI, RCM, EAC, FAC RoHS, FIPS 140-2 ^{*3}	FCC Class A, UL, CE, CB, GS, VCCI, CCC*, KCC, BSMI, RCM RoHS	FCC Class A, UL, CE, TUV, CB, VCCI, CCC, KCC, BSMI, RCM, NEBS RoHS
Standard Warranty	90-Day Hardware and Software				

Thunder CGN Physical Appliance (Cont.)

PERFORMANCE	THUNDER 3430 CGN	THUNDER 4430 CGN	THUNDER 4440 CGN	THUNDER 5330 CGN	THUNDER 5430-11 CGN
Throughput	42 Gbps	38 Gbps	80 Gbps	78 Gbps	77 Gbps
Setups Per Second	2.1 Million	2.1 Million	2.5 Million	3.1 Million	3.1 Million
Full TCP Connections Per Second	1 Million	1 Million	1.1 Million	1.2 Million	1.6 Million
Concurrent Sessions	128 Million	128 Million	128 Million	128 Million	256 Million
Application Delivery Partitions	127	127	127	127	1,023
NETWORK INTERFACE					
1 GE Fiber (SFP)	4	0	0	0	0
1/10 GE Fiber (SFP+)	4	16	24	8	16
40 GE Fiber (QSFP+)	0	4	4	0	4
Management Ports	1 x Ethernet Management Port, 1 x RJ-45 Console Port				
HARDWARE SPECIFICATIONS					
Processor	Intel Xeon 6-core	Intel Xeon 6-core	Intel Xeon 6-core	Intel Xeon 10-core	Intel Xeon 10-core
Memory (ECC RAM)	32 GB	32 GB	32 GB	32 GB	64 GB
Storage	SSD	SSD	SSD	SSD	SSD
Hardware Acceleration	FTA-4	FTA-3	2 x FTA-4	FTA-4	2 x FTA-3
Dimensions (Inches)	1.75 (H) x 17.5 (W) x 17.15 (D)	1.75 (H) x 17.5 (W) x 24.6 (D)	1.75 (H) x 17.5 (W) x 30 (D)	1.75 (H) x 17.5 (W) x 17.15 (D)	1.75 (H) x 17.5 (W) x 24.6 (D)
Rack Units (Mountable)	1U	1U	1U	1U	1U
Unit Weight	23 lbs	25.2 lbs	32.5 lbs	23 lbs	25.6 lbs
Power Supply (DC option available)	Dual 600W RPS	Dual 600W RPS	Dual 1100W RPS	Dual 600W RPS	Dual 600W RPS
	80 Plus Platinum efficiency, 100 - 240 VAC, 50 – 60 Hz				
Power Consumption (Typical/Max) ¹	210W / 260W	266W / 319W	360W / 445W	210W / 260W	288W / 345W
Heat in BTU/Hour (Typical/Max) ¹	717 / 887	908 / 1,088	1,229 / 1,519	717 / 887	983 / 1,178
Cooling Fan	Hot Swap Smart Fans				
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%				
Regulatory Certifications	FCC Class A, UL, CE, GS, CB, VCCI, CCC, KCC, BSMI, RCM, NEBS RoHS	FCC Class A, UL, CE, TUV, CB, VCCI, CCC, KCC, BSMI, RCM RoHS, FIPS 140-2 ^{1,3}	FCC Class A, UL, CE, GS, CB, VCCI, CCC, KCC, BSMI, RCM RoHS, FIPS 140-2 ^{1,3}	FCC Class A, UL, CE, GS, CB, VCCI, CCC, BSMI, RCM, NEBS RoHS	FCC Class A, UL, CE, TUV, CB, VCCI, CCC, KCC, BSMI, RCM RoHS
Standard Warranty	90-Day Hardware and Software				

Thunder CGN Physical Appliance (Cont.)

PERFORMANCE	THUNDER 5440 CGN	THUNDER 5630 CGN	THUNDER 5840 CGN	THUNDER 6430 CGN	THUNDER 6440 CGN
Throughput	100 Gbps	76 Gbps	115 Gbps	150 Gbps	160 Gbps
Setups Per Second	5 Million	5.9 Million	7 Million	5.2 Million	6.5 Million
Full TCP Connections Per Second	2.2 Million	3 Million	3 Million	2.6 Million	2.8 Million
Concurrent Sessions	256 Million	256 Million	256 Million	256 Million	256 Million
Application Delivery Partitions	1,023	1,023	1,023	1,023	1,023
NETWORK INTERFACE					
1 GE Fiber (SFP)	0	4	0	0	0
1/10 GE Fiber (SFP+)	24	24	24	16	48
40 GE Fiber (QSFP+)	4	4	4	4	4
Management Ports	1 x Ethernet Management Port, 1 x RJ-45 Console Port				
HARDWARE SPECIFICATIONS					
Processor	Intel Xeon 12-core	2 x Intel Xeon 8-core	Intel Xeon 18-core	2 x Intel Xeon 8-core	2 x Intel Xeon 10-core
Memory (ECC RAM)	64 GB	128 GB	64 GB	128 GB	128 GB
Storage	SSD	SSD	SSD	SSD	SSD
Hardware Acceleration	2 x FTA-4	4 x FTA-2	2 x FTA-4	4 x FTA-3	3 x FTA-4
Dimensions (Inches)	1.75 (H) x 17.5 (W) x 30 (D)	5.3(H)x 16.9(W)x 28(D)	1.75(H)x 17.5(W)x 30(D)	1.75(H)x 17.5(W)x 30(D)	1.75(H)x 17.5(W)x 30(D)
Rack Units (Mountable)	1U	3U	1U	1U	1U
Unit Weight	32.5 lbs	72 lbs	32.5 lbs	39 lbs	36 lbs
Power Supply (DC option available)	Dual 1100W RPS	2+2 1100W RPS	Dual 1100W RPS	Dual 1100W RPS	Dual 1100W RPS
	80 Plus Platinum efficiency, 100 - 240 VAC, 50 – 60 Hz				
Power Consumption (Typical/Max) ¹	360W / 445W	780W / 890W	375W / 470W	590W / 680W	480W / 550W
Heat in BTU/Hour (Typical/Max) ¹	1,229 / 1,519	2,661 / 3,037	1,280 / 1,604	2,013 / 2,320	1,638 / 1,877
Cooling Fan	Hot Swap Smart Fans				
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%				
Regulatory Certifications	FCC Class A, UL, CE, GS, CB, VCCI, CCC, BSMI, RCM RoHS	FCC Class A, UL, CE, TUV, CB, VCCI, KCC ² , EAC, FAC RoHS, FIPS 140-2 ^{1*}	FCC Class A, UL, CE, GS, CB, VCCI, CCC, BSMI, RCM RoHS	FCC Class A, UL, CE, TUV, CB, VCCI, CCC, KCC, BSMI, RCM, EAC, FAC, NEBS RoHS, FIPS 140-2 ³	FCC Class A, UL, CE, GS, CB, VCCI, CCC, BSMI, RCM RoHS
Standard Warranty	90-Day Hardware and Software				

Thunder CGN Physical Appliance (Cont.)

	THUNDER 6630 CGN	THUNDER 7440 CGN	THUNDER 7440-11 CGN
PERFORMANCE			
Throughput	155 Gbps	220 Gbps	220 Gbps
Setups Per Second	7.5 Million	9 Million	9 Million
Full TCP Connections Per Second	3.2 Million	5 Million	5 Million
Concurrent Sessions	256 Million	256 Million	256 Million
Application Delivery Partitions	1,023	1,023	1,023
NETWORK INTERFACE			
1/10 GE Fiber (SFP+)	12	48	48
40 GE Fiber (QSFP+)	0	4	0
100 GE Fiber	4 (CXP)	0	4 (QSFP28)
Management Ports	1 x Ethernet Management Port, 1 x RJ-45 Console Port		
HARDWARE SPECIFICATIONS			
Processor	2 x Intel Xeon 12-core	2 x Intel Xeon 18-core	2 x Intel Xeon 18-core
Memory (ECC RAM)	128 GB	128 GB	128 GB
Storage	SSD	SSD	SSD
Hardware Acceleration	4 x FTA-3	3 x FTA-4	3 x FTA-4
Dimensions (Inches)	5.3 (H) x 16.9 (W) x 28 (D)	1.75 (H) x 17.5 (W) x 30 (D)	1.75 (H) x 17.5 (W) x 30 (D)
Rack Units (Mountable)	3U	1U	1U
Unit Weight	74.5 lbs	36 lbs	37 lbs
Power Supply (DC option available)	2+2 1100W RPS	Dual 1100W RPS	Dual 1500W RPS
	80 Plus Platinum efficiency, 100 - 240 VAC, 50 - 60 Hz		
Power Consumption (Typical/Max) ^{*1}	995W / 1,150W	690W / 820W	820W / 950W
Heat in BTU/Hour (Typical/Max) ^{*1}	3,395 / 3,924	2,355 / 2,798	2,798 / 3,242
Cooling Fan	Hot Swap Smart Fans		
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%		
Regulatory Certifications	FCC Class A, UL, CE, TUV, CB, VCCI, KCC*, EAC, FAC RoHS, FIPS 140-2 ^{*3}	FCC Class A, UL, CE, GS, CB, VCCI, CCC, KCC, BSMI, RCM RoHS, FIPS 140-2 ^{*3}	FCC Class A*, UL*, CE*, GS*, CB*, VCCI*, CCC*, KCC*, BSMI*, RCM* RoHS*
Standard Warranty	90-Day Hardware and Software		

The specifications, performance numbers are subject to change without notice, and may vary depending on configuration and environmental conditions.

^{*1} With base model. Number varies by SSL model | ^{*2} No dedicated hardware but FTA-4 FPGA handles select switching/routing functions

^{*3} FIPS model must be purchased | ^ Certification in process | * Optional RPS

THUNDER CGN SPE PHYSICAL APPLIANCE

PERFORMANCE	THUNDER 4435 CGN	THUNDER 5435 CGN	THUNDER 6435 CGN	THUNDER 6635 CGN	THUNDER 14045 CGN SINGLE MODULE	THUNDER 14045 CGN DUAL MODULE
Throughput	38 Gbps	77 Gbps	155 Gbps	155 Gbps	150 Gbps	300 Gbps
Setups Per Second	3 Million	3.5 Million	7.5 Million	7.5 Million	10 Million	20 Million
Full TCP Connections Per Second	1.4 Million	1.6 Million	3.2 Million	3.2 Million	4 Million	8 Million
Concurrent Sessions	128 Million	256 Million	256 Million	256 Million	256 Million	512 Million
Selective Dynamic Filter Rate [PPS]*	55 Million	112 Million	224 Million	224 Million	224 Million	450 Million
Selective Dynamic Filter Hardware Entries (IPv4/IPv6)	256K / 128K	256K / 128K	256K / 128K	256K / 128K	256K / 128K	512K / 256K
Application Delivery Partitions	1,023	1,023	1,023	1,023	1,023	1,023
NETWORK INTERFACE						
1/10 GE Fiber (SFP+)	16	16	16	12	0	0
40 GE Fiber (QSFP+)	0	4	4	0	4	4
100 GE Fiber	0	0	0	4 (CXP)	4 (CFP or QSFP28)	4 (CFP or QSFP28)
Management Ports	1 x Ethernet Management Port, 1 x RJ-45 Console Port*, 1 x Lights Out Management					
HARDWARE SPECIFICATIONS						
Processor (Intel Xeon)	10-core	10-core	2 x 12-core	2 x 12-core	2 x 18-core	4 x 18-core
Memory (ECC RAM)	64 GB	64 GB	128 GB	128 GB	256 GB	512 GB
Storage	SSD	SSD	SSD	SSD	SSD	SSD
Hardware Acceleration	FTA-3, SPE	2 x FTA-3, SPE	4 x FTA-3, SPE	4 x FTA-3, SPE	4 x FTA-3, SPE	8 x FTA-3, SPE
Dimensions (Inches)	1.75 (H) x 17.5 (W) x 30 (D)	1.75 (H) x 17.5 (W) x 30 (D)	1.75 (H) x 17.5 (W) x 30 (D)	5.3 (H) x 16.9 (W) x 28 (D)	5.3 (H) x 16.9 (W) x 28 (D)	5.3 (H) x 16.9 (W) x 28 (D)
Rack Units (Mountable)	1U	1U	1U	3U	3U	3U
Unit Weight	34.5 lbs	35.5 lbs	39 lbs	74.5 lbs	80 lbs	102 lbs
Power Supply (DC option available)	Dual 1100W RPS	Dual 1100W RPS	Dual 1100W RPS	2+2 1100W RPS	2+2 1100W RPS	2+2 1100W RPS
	80 Plus Platinum efficiency, 100 - 240 VAC, 50 - 60 Hz					
Power Consumption (Typical/Max)*	350W / 420W	400W / 480W	620W / 710W	995W / 1,150W	1,000W / 1,200W	1,700W / 2,000W
Heat in BTU/Hour (Typical/Max)*	1,195 / 1,433	1,365 / 1,638	2,116 / 2,423	3,395 / 3,924	3,412 / 4,095	5,801 / 6,825
Cooling Fan	Hot Swap Smart Fans					
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%					
Regulatory Certifications	FCC Class A, UL, CE, TUV, CB, VCCI, CCC, MSIP, BSMI, RCM, EAC, NEBS RoHS	FCC Class A, UL, CE, TUV, CB, VCCI, CCC, BSMI, RCM, NEBS RoHS	FCC Class A, UL, CE, TUV, CB, VCCI, CCC, BSMI, RCM, NEBS RoHS	FCC Class A, UL, CE, TUV, CB, VCCI, EAC, FAC RoHS	FCC Class A, UL, CE, GS, CB, VCCI, CCC*, KCC, BSMI, RCM RoHS	FCC Class A, UL, CE, GS, CB, VCCI, CCC*, KCC, BSMI, RCM RoHS
Standard Warranty	90-Day Hardware and Software					

The specifications, performance numbers are subject to change without notice, and may vary depending on configuration and environmental conditions.

* Packets per second. Hardware-based selective dynamic filtering feature is available on Thunder CGN SPE family

* With base model. Number varies by SSL model | * Thunder 14045 comes with a splitter cable for console to provide access to both modules.

THUNDER CGN HVA PHYSICAL APPLIANCE

	THUNDER 3030S HVA	THUNDER 3530S HVA
PERFORMANCE		
Throughput*	35 Gbps	100 Gbps
vThunder Instances (Included)	8	40
NETWORK INTERFACE		
1 GE Copper	6	4
1 GE Fiber (SFP)	2	2
1/10 GE Fiber (SFP+)	4	12
Management Ports	1 x Ethernet Management Port, 1 x RJ-45 Console Port, 1 x Lights Out Management	
HARDWARE SPECIFICATIONS		
Processor (Intel Xeon)	4-core	2 x 10-core
Memory (ECC RAM)	32 GB	128 GB
Storage	SSD	SSD
Hardware Acceleration	Software	Software
Dimensions (Inches)	1.75 (H) x 17.5 (W) x 17.45 (D)	1.75(H)x 17.25(W)x 22.8 (D)
Rack Units (Mountable)	1U	1U
Unit Weight	20.1 lbs	29.6 lbs
Power Supply (DC option available)	Dual 600W RPS	Dual 750W RPS
	80 Plus Platinum efficiency, 100 - 240 VAC, 50 – 60 Hz	80 Plus Gold efficiency, 100 - 240 VAC, 50 – 60 Hz
Power Consumption (Typical/Max) ²	131W / 139W	380W / 476W
Heat in BTU/Hour (Typical/Max) ²	447 / 474	1,297 / 1,624
Cooling Fan	Hot Swap Smart Fans	
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%	
Regulatory Certifications	FCC Class A [†] , UL [†] , CE [†] , TUV [†] , CB [†] , VCCI [†] , China CCC [†] , BSMI [†] , RCM [†] , EAC [†] , FAC [†]	
Standard Warranty	90-Day Hardware and Software	

The specifications, performance numbers are subject to change without notice, and may vary depending on configuration and environmental conditions.

* Performance varies by number of virtual machines running and hardware resources assigned | [†] Certification in process

vTHUNDER CGN

Supported Hypervisors	VMware ESXi 4.1 or Higher KVM QEMU 1.0 or Higher (VirtIO, OvS with DPDK, SR-IOV) Microsoft Hyper-V on Windows Server 2008 R2 or Higher
Hardware Requirements	See Installation Guide
Standard Warranty	90-Day Software

Bandwidth Licenses	Lab	200 Mbps	1 Gbps	4 Gbps	8 Gbps	10 Gbps	20 Gbps
VMware ESXi	●	●	●	●	●	●	
KVM (KVM OvS-DPDK)	●	●	●	●	●	●	●
KVM	●	●	●	●	●		
Microsoft Hyper-V	●	●	●	●	● ⁺		

⁺8 Gbps license not recommended for Microsoft Hyper-V

THUNDER CGN FOR BARE METAL

System Requirements	Minimum Hardware Requirement <ul style="list-style-type: none"> • Intel x86-based CPUs with minimum of 4 cores • 16 GB RAM • 80 GB of free disk space • 2 Ethernet interfaces (3 or more are recommended) • Intel Network Adapters and drivers including igb, ixgbe, i40e and more.
Reference Platforms	Cisco UCS, Dell PowerEdge, Ericsson Hyperscale Datacenter System (HDS), HP ProLiant and more.
Bandwidth Licenses*	10 Gbps (4 cores), 20 Gbps (8 cores) and 40 Gbps (14 cores)
Standard Warranty	90-Day Software

*Licenses are tied with maximum number of cores which can be allocated to ACOS

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