

Thunder CGN Physical Appliance Specifications

	Thunder 1060S CGN		Thunder 3350-E CGN
Modular License	10 Gbps	25 Gbps	-
Performance			
Throughput	10 Gbps	25 Gbps	30 Gbps
Full TCP Connections per Second	300K	600K	500K
Concurrent Sessions	32 Million	96 Million	64 Million
Network Interfaces			
1GE Copper	7	7	6
1GE Fiber (SFP)	0	0	2
10/1GE Fiber (SFP+/SFP)	4	4	8 + 4 ⁴
25/10GE Fiber (SFP28/SFP+)	2	2	0
40GE Fiber (QSFP+)	0	0	0
100/40GE Fiber (QSFP28/QSFP+)	0	0	0
Management Ports	Ethernet mgmt. port, RJ-45 console port		
Hardware Specifications			
Processor	Intel communications processor 20-core [9-core active]	Intel communications processor 20-core	Intel Xeon 8-core
Memory (ECC RAM)	32 GB [24 GB active]	32 GB	16 GB
Storage	SSD	SSD	SSD
Hardware Acceleration	Software	Software	Software
Dimensions (inches)	1.75 (H) x 17.5 (W) x 17 (D)	1.75 (H) x 17.5 (W) x 17 (D)	1.75 (H) x 17.5 (W) x 18(D)
Rack Units (mountable)	1U	1U	1U
Unit Weight	12 lbs	12 lbs	18 lbs
Power Supply (DC option available)	Dual 300W RPS	Dual 300W RPS	Dual 750W RPS
	80 Plus Gold efficiency, 100 - 240 VAC, 50 - 60 Hz		
Power Consumption (typical/max) ¹	112W / 127W	112W / 127W	151W / 205W
Heat in BTU/Hour (typical/max) ¹	383 / 434	383 / 434	516 / 700
Cooling Fan (front-to-back airflow)	Removable fans	Removable fans	Hot swap smart fans
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%		
Regulatory Certifications	FCC Class A, UL [*] , ICES, CE, UKCA, CB [*] , VCCI, BSMI [*] , RCM RoHS [*]	FCC Class A, UL [*] , ICES, CE, UKCA, CB [*] , VCCI, BSMI [*] , RCM RoHS [*]	FCC Class A, UL, CE, UKCA, CB, VCCI, BSMI, RCM RoHS
Standard Warranty	90-day hardware and software		

Thunder CGN Physical Appliance (cont.)

	Thunder 3350 CGN	Thunder 3350S CGN	Thunder 4440 CGN
Modular License	-	50 Gbps	-
Performance			
Throughput	40 Gbps	50 Gbps	78 Gbps
Full TCP Connections per Second	900K	1.5 Million	1.5 Million
Concurrent Sessions	96 Million	128 Million	128 Million
Network Interfaces			
1GE Copper	6	6	0
1GE Fiber (SFP)	2	2	0
10/1GE Fiber (SFP+/SFP)	4 ⁴	8 + 4 ⁴	24
25/10GE Fiber (SFP28/SFP+)	4	0	0
40GE Fiber (QSFP+)	4	0	4
100/40GE Fiber (QSFP28/QSFP+)	0	0	0
Management Ports	Ethernet mgmt. port, RJ-45 console port		Ethernet mgmt. port, RJ-45 console port, Lights out management
Hardware Specifications			
Processor	Intel Xeon 8-core	Intel Xeon 14-core	Intel Xeon 6-core
Memory (ECC RAM)	32 GB	64 GB	32 GB
Storage	SSD	SSD	SSD
Hardware Acceleration	Software	Software	2 x FTA-4
Dimensions (inches)	1.75 (H) x 17.5 (W) x 18(D)	1.75 (H) x 17.5 (W) x 18(D)	1.75 (H) x 17.5 (W) x 30 (D)
Rack Units (mountable)	1U	1U	1U
Unit Weight	18 lbs	18 lbs	32.5 lbs
Power Supply (DC option available)	Dual 750W RPS	Dual 750W RPS	Dual 1100W RPS
	80 Plus Platinum Efficiency, 100 - 240 VAC, 50 - 60 Hz		
Power Consumption (typical/max) ¹¹	165W / 238W	175W / 222W	360W / 445W
Heat in BTU/Hour (typical/max) ¹¹	564 / 831	598 / 758	1,229 / 1,519
Cooling Fan (front-to-back airflow)	Hot swap smart fans		
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%		
Regulatory Certifications	FCC Class A, UL, CE, UKCA, CB, VCCI, KCC, BSMI, RCM RoHS	FCC Class A, UL, CE, UKCA, CB, VCCI, KCC, BSMI, RCM RoHS, FIPS 140-2 ¹³	FCC Class A, UL, CE, UKCA, CB, VCCI, KCC, BSMI, RCM RoHS
Standard Warranty	90-day hardware and software		

Thunder CGN Physical Appliance (cont.)

	Thunder 5440 _{CGN}	Thunder 5840 _{CGN}	Thunder 5840-11 _{CGN}	Thunder 5960 _{CGN}
Modular License	-	-	-	100/200/300 Gbps
Performance				
Throughput	100 Gbps	115 Gbps	115 Gbps	300 Gbps ⁵
Full TCP Connections per Second	2 milion	3 Million	3 Million	2.3 Million
Concurrent Sessions	256 Million	256 Million	256 Million	256 Million
Network Interfaces				
1GE Copper	0	0	0	0
1GE Fiber (SFP)	0	0	0	0
10/1GE Fiber (SFP+/SFP)	24	24	48	0
25/10GE Fiber (SFP28/SFP+)	0	0	0	4
40GE Fiber (QSFP+)	4	4	0	0
100/40GE Fiber (QSFP28/QSFP+)	0	0	4	4
Management Ports	Ethernet mgmt. port, RJ-45 console port, Lights out management			Ethernet mgmt. port, RJ-45 console port
Hardware Specifications				
Processor	Intel Xeon 12-core	Intel Xeon 18-core	Intel Xeon 18-core	Intel Xeon 36-core
Memory (ECC RAM)	64 GB	64 GB	64 GB	128 GB
Storage	SSD	SSD	SSD	SSD
Hardware Acceleration	2 x FTA-4	2x FTA-4	2x FTA-4	Software
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)	1.75 (H) x 17 (W) x 24 (D)
Rack Units (mountable)	1U	1U	1U	1U
Unit Weight	32.5 lbs	32.5 lbs	34.3 lbs	25.1 lbs
Power Supply (DC option available)	Dual 1100W RPS	Dual 1100W RPS	Dual 1500W RPS	Dual 550W RPS
	80 Plus Platinum Efficiency, 100 - 240 VAC, 50 - 60 Hz			
Power Consumption (typical/max) ¹¹	360W / 445W	375W / 470W	550W / 760W	361W / 451W
Heat in BTU/Hour (typical/max) ¹¹	1,229 / 1,519	1,280 / 1,604	1,877 / 2,594	1,232 / 1,539
Cooling Fan (front-to-back airflow)	Hot swap smart fans			
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%			
Regulatory Certifications	FCC Class A, UL, CE, UKCA, CB, VCCI, KCC, BSMI, RCM RoHS	FCC Class A, UL, CE, UKCA, CB, VCCI, KCC, BSMI, RCM RoHS	FCC Class A, UL, CE, UKCA, CB, VCCI, BSMI, RCM RoHS	FCC Class A, UL, ICES, CE, UKCA, CB, VCCI, BSMI, RCM RoHS
Standard Warranty	90-Day hardware and software			

Thunder CGN Physical Appliance (cont.)

	Thunder 6440 _{CGN}	Thunder 7440 _{CGN}	Thunder 7440-11 _{CGN}	Thunder 7650 _{CGN}
Modular License	-	-	-	-
Performance				
Throughput	150 Gbps	220 Gbps	220 Gbps	370 Gbps
Full TCP Connections per Second	3 Million	5 Million	5 Million	8 Million
Concurrent Sessions	256 Million	256 Million	256 Million	384 Million
Network Interfaces				
1GE Copper	0	0	0	0
1GE Fiber (SFP)	0	0	0	0
10/1GE Fiber (SFP+/SFP)	48	48	48	0
25/10GE Fiber (SFP28/SFP+)	0	0	0	0
40GE Fiber (QSFP+)	4	4	0	0
100/40GE Fiber (QSFP28/QSFP+)	0	0	4	16
Management Ports	Ethernet mgmt. port, RJ-45 console port, Lights out management			
Hardware Specifications				
Processor	2 x Intel Xeon 10-core	2 x Intel Xeon 18-core	2 x Intel Xeon 18-core	2 x Intel Xeon 24-core
Memory (ECC RAM)	128 GB	128 GB	128 GB	192 GB
Storage	SSD	SSD	SSD	SSD
Hardware Acceleration	3 x FTA-4	3 x FTA-4	3 x FTA-4	2 x FTA-5
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)	2.625 (H) x 17.5 (W) x 30 (D)
Rack Units (mountable)	1U	1U	1U	1.5U
Unit Weight	36 lbs	35.7 lbs	35.7 lbs	41.5 lbs
Power Supply (DC option available)	Dual 1100W RPS	Dual 1100W RPS	Dual 1500W RPS	Dual 1500W RPS
	80 Plus Platinum Efficiency, 100 - 240 VAC, 50 - 60 Hz			
Power Consumption (typical/max) ^{*1}	480W / 550W	690W / 820W	784W / 950W	864W / 1,091W
Heat in BTU/Hour (typical/max) ^{*1}	1,638 / 1,877	2,355 / 2,798	2,676 / 3,242	2,949 / 3,722
Cooling Fan (front-to-back airflow)	Hot swap smart fans			
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%			
Regulatory Certifications	FCC Class A, UL, CE, UKCA, CB, VCCI, KCC, BSMI, RCM RoHS	FCC Class A, UL, CE, UKCA, CB, VCCI, KCC, BSMI, RCM RoHS	FCC Class A, UL, CE, UKCA, CB, VCCI, BSMI, RCM RoHS, FIPS 140-2 ^{*3}	FCC Class A, UL, CE, UKCA, CB, VCCI, KCC, BSMI, RCM RoHS
Standard Warranty	90-day hardware and software			

Hardware specifications and performance numbers are subject to change without notice, and may vary depending on configuration and environmental conditions. As for network interface, it's highly recommended to use A10 Networks qualified optics/transceivers to ensure network reliability and stability.

All CGN products are also available in CFW license. For firewall and hierarchical traffic control use cases, CFW product line is required.

*1 With base model. Number varies by SSL model | *2 Optional RPS | *3 FIPS model must be purchased | *4 10 Gbps speed only | *5 Modular license offering is available based on bandwidth needs | ^ Certification in process

Thunder CGN SPE Physical Appliance Specifications

	Thunder 5845 _{CGN}	Thunder 7445 _{CGN}	Thunder 7655S _{CGN}	Thunder 8665S _{CGN}
Modular License	-	75/100/150/200/220 Gbps	-	-
Performance				
Throughput	115 Gbps	220 Gbps* ³	370 Gbps	550 Gbps
Full TCP Connections per Second	3 Million	5 Million	8 Million	8.5 Million
Concurrent Sessions	256 Million	256 Million	384 Million ²	800 Million
Selective Dynamic Filter Rate [PPS] ¹	166 Million	332 Million	500 Million	740 Million
Selective Dynamic Filter Hardware Entries (IPv4/IPv6)	256K / 128K	256K / 128K	512K / 256K	256K / 128K
Network Interfaces				
10/1GE Fiber (SFP+/SFP)	48	48	0	0
100/40GE Fiber (QSFP28/QSFP+)	4	4	16	0
400GE Fibre (QSFP-DD)	0	0	0	12
Management Ports	Ethernet mgmt. port, RJ-45 console port, Lights out management			2 x Ethernet mgmt. port, RJ-45 console port
Hardware Specifications				
Processor (Intel Xeon)	18-core	2 x 18-core	2 x 28-core	2 x 36-core
Memory (ECC RAM)	64 GB	128 GB	384 GB	512 GB
Storage	SSD	SSD	SSD	SSD
Hardware Acceleration	2 x FTA-4, SPE	3 x FTA-4, SPE	2 x FTA-5, SPE	3 x FTA-6, SPE
Dimensions (inches)	1.75 (H) x 17.5 (W) x 30 (D)	1.75 (H) x 17.5 (W) x 30 (D)	2.625 (H) x 17.5 (W) x 30 (D)	2.625 (H) x 17.5 (W) x 30 (D)
Rack Units (mountable)	1U	1U	1.5U	1.5U
Unit Weight	34.3 lbs	35.7 lbs	44.2 lbs	44.9 lbs
Power Supply (DC option available)	Dual 1500W RPS	Dual 1500W RPS	Dual 1500W RPS	Dual 2500W RPS
	80 Plus Platinum Efficiency, 100 - 240 VAC, 50 - 60 Hz			
Power Consumption (typical/max) ¹	585W / 921W	784W / 1,078W	1,121W / 1,300W	1,491W / 1,720W
Heat in BTU/Hour (typical/max) ¹	1,997 / 3,143	2,676 / 3,679	3,826 / 4,436	5,088 / 5,869
Cooling Fan (front-to-back airflow)	Hot swap smart fans			
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%			
Regulatory Certifications	FCC Class A, UL, CE, UKCA, CB, VCCI, BSMI, RCM RoHS	FCC Class A, UL, CE, UKCA, CB, VCCI, BSMI, RCM RoHS	FCC Class A, UL, CE, UKCA, CB, VCCI, BSMI, RCM RoHS, FIPS 140-2 ¹	FCC Class A, UL, ICES, CE, UKCA, CB, VCCI, RCM RoHS
Standard Warranty	90-day hardware and software			

Hardware specifications and performance numbers are subject to change without notice, and may vary depending on configuration and environmental conditions. As for network interface, it's highly recommended to use A10 Networks qualified optics/transceivers to ensure network reliability and stability.

¹ Packets per second. Hardware-based selective dynamic filtering feature is available on Thunder CGN SPE family |

* With base model. Number varies by SSL model | + Certification in process | *1 FIPS model must be purchased |

*2 Capacity can be increased (doubled) from ACOS 5.2.1-P7/ 6.0.1 onward | *3 Modular license offering is available based on bandwidth needs

A10 Thunder on Dell Technologies OEM Solution Bundle Specs.

Single Service Platform (SSP) Specifications

The SSP range consists of A10's cloud-ready software and purpose-built Dell Technologies hardware, with an inclusive license* that has the capabilities of delivering Application Delivery Controller (ADC), SSL Insight (SSLi), and Carrier Grade Networking (CGN) solutions along with an expanded feature set of A10 capabilities.

Thunder CGN Performance	Dell Technologies VEP4600	Dell Technologies R640		Dell Technologies R740	
		10GE NIC Model	100GE NIC Model	10GE NIC Model	100GE NIC Model
Throughput	12 Gbps	30 Gbps	60 Gbps	60 Gbps	100 Gbps
Full TCP Connections per Second	500K	1.5 Million	1.5 Million	2 Million	2 Million
Concurrent Sessions	50 Million	100 Million	100 Million	100 Million	100 Million
Network Interfaces					
1 GE (BASE-T)	6	2	2	2	2
1/10 GE Fiber (SFP+)	4	6	2	10	10
100 GE Fiber (QSFP28)	0	0	2	0	4
Hardware Specifications					
Processor	Intel Xeon 8-core	2 x Intel Xeon 20-core		2 x Intel Xeon 20-core	
Memory	16 GB	192 GB		192 GB	
Storage	SSD	2 x SSD		2 x SSD	
TLS/SSL Security Processor	Built-in	2 x Security card (PCIe)		2 x Dual-chip security card (PCIe)	
Power Supply	Single 230W power supply	Dual 750W power supply		Dual 2000W power supply	

Multi-tenant Virtual Platform (MVP) Specifications

A10 Thunder Multi-tenant Virtual Platform (MVP) is an advanced platform enabling multiple virtual instances or services on a single platform, that has the capabilities of delivering Application Delivery Controller (ADC) and Carrier Grade Networking (CGN) solutions along with an expanded feature set of A10 capabilities.

Performance with CGNAT	A10 Thunder MVP*2	
Throughput	200 Gbps	
Full TCP Connections per Second	3 Million	
Concurrent Sessions	256 Million	
vThunder Instances	Up to 14	
Network Interfaces		
25/10 GE Fiber (SFP28/SFP+)	4	
100/40 GE Fiber (QSFP28/QSFP+)	4	
Hardware Specifications		
Processor	2 x Intel Xeon 24-core	
Memory	256 GB	
Storage	2 x SSD	
TLS/SSL Security Processor	Integrated QAT	
Power Supply (DC option available)	Dual 1400W power supply	

Specifications and performance numbers are subject to change without notice, and may vary depending on configuration and environmental conditions.
 *1 Single service platform (SSP) is licensed under the Convergent Firewall (CFW) license. Check with your A10 Networks sales representative for the latest information on full feature testing and validation. | *2 Available bandwidth license: 50, 100, 150, 200 Gbps. Maximum throughput performance depends on the license.

Thunder MVP performance specifications are aggregate number that use the following VM profiles:
 - A10 Thunder MVP is tested on Dell R760 with 2-VM profile (32 vCPUs, 64 GB memory, 100GB storage assigned on each vThunder)

Thunder CGN Software Appliance Specifications

vThunder CGN	
Supported Hypervisors	VMware ESXi (VMXNET3, SR-IOV, PCI Passthrough), KVM QEMU (VirtIO, OvS with DPDK, SR-IOV, PCI Passthrough), Microsoft Hyper-V ³
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	40 Gbps	100 Gbps	FlexPool
VMware ESXi	●	●	●	●	●	●	● ^{*1}	● ^{*1 *2}	● ^{*2}	●
KVM	●	●	●	●	●	●	● ^{*1}	● ^{*1 *2}	● ^{*2}	●
Microsoft Hyper-V ³	●	●	●	●	●					●

Thunder CGN for Bare Metal	
System Requirements	Minimum hardware requirement: 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, and i40e. For more details, see installation guide.
Reference Platforms	Dell PowerEdge, Cisco UCS, Ericsson Hyperscale Datacenter System (HDS), HP ProLiant and more
Bandwidth Licenses*	10 Gbps (4 cores), 20 Gbps (8 cores), 40 Gbps (14 cores) and 60 Gbps (24 cores) FlexPool (Up to 60 Gbps per Thunder CGN)
Standard Warranty	90-day software

Thunder CGN Container	
Image Format	Docker
Operating System	Reference operating system: <ul style="list-style-type: none"> • Ubuntu 16.04.3 LTS (Xenial Xerus) • RedHat Enterprise Linux version 7.6
System Requirements	Minimum requirement: <ul style="list-style-type: none"> • 1 or more data interface • 1 vCPU and 4GB memory
Licenses	BYOL bandwidth license FlexPool license
Performance Reference**	Maximum throughput on a single Thunder container (24 vCPUs, shared polling mode off) <ul style="list-style-type: none"> • 1510B: 180 Gbps • 512B: 103 Gbps • IMIX: 75 Gbps
Standard Warranty	90-day software

*1 SR-IOV | *2 PCI Passthrough | *3 Hyper-V is supported in ACOS 4.x and 5.x release. 8 Gbps license is not recommended.

* Licenses are tied to the maximum number of cores that can be allocated to ACOS

** Supermicro 7049GP-TRT with Intel Xeon Platinum 8160 CPU @ 2.10GHz and 2x Mellanox Connect X-5 NICs. Tested with UDP traffic for CGNAT use case.

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Part Number: A10-DS-15110-EN-30 Nov 2024