A10

Thunder ADC Physical Appliance Specifications

	Thunder 1060S ADC		Thunder 3350-E ADC	Thunder 3350 ADC
Modular License	10 Gbps	25 Gbps	-	-
Performance				
Application Throughput (L4/L7)	10 Gbps / 10 Gbps	25 Gbps / 25 Gbps	30 Gbps / 30 Gbps	40 Gbps / 40 Gbps
Layer 4 CPS	550K	800K	800K	1 Million
Layer 4 Concurrent Sessions	32 Million	96 Million	64 Million	96 Million
Layer 7 CPS (1:1)[*1]	200K	480K	330K	500K
SSL Bulk Throughput[*2]	10 Gbps	15 Gbps	13 Gbps	18 Gbps
SSL CPS[*2]	RSA: 15K ECDSA: 5K	RSA: 28K ECDSA: 9K	RSA: 28K ECDSA: 15K	RSA: 28K ECDSA: 15K
DDoS Protection (SYN flood) SYN/sec	4 Million	8 Million	8 Million	8 Million
Network Interfaces				
1GE (BASE-T)	7	7	6	6
1GE Fiber (SFP)	0	0	2	2
10/1GE Fiber (SFP+/SFP)	4	4	8 + 4[*8]	4[*8]
25/10GE Fiber (SFP28/SFP+)	2	2	0	4
40GE Fiber (QSFP+)	0	0	0	4
100/40GE Fiber (QSFP28/QSFP+)	0	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	Intel Xeon 8-core
Memory (ECC RAM)	32 GB [24 GB active]	32 GB	16 GB	32 GB
Storage	SSD	SSD	SSD	SSD
Hardware Acceleration	Software	Software	Software	Software
TLS/SSL Security Acceleration	Hardware	Hardware	Hardware	Hardware
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)	1.75 (H) x 17.5 (W) x 18(D)
Rack Units (mountable)	1U	1U	1U	1U
Unit Weight[*3]	12 lbs	12 lbs	18 lbs	18 lbs
Power Supply (DC option available)	Dual 300W RPS 80 Plus Gold efficiency, 100 - 240 VAC, 50 – 60 Hz	Dual 300W RPS	Dual 750W RPS 80 Plus Platinum efficiency, 100 - 240 VAC, 50 – 60 Hz	Dual 750W RPS
Power Consumption (typical/max)[*3]	112W / 127W	112W / 127W	151W / 205W	165W / 238W
Heat in BTU/hour (typical/max)[*3]	383 / 434	383 / 434	516 / 700	564 / 831
Cooling Fan (front-to-back airflow)	Removable fans		Hot swap smart fans	
Operating Ranges				
Regulatory Certifications	FCC Class A, ULˆ, ICES, CE, UKCA, CBˆ, VCCI, BSMIˆ, RCM | RoHS	FCC Class A, ULˆ, ICES, CE, UKCA, CBˆ, VCCI, BSMIˆ, RCM | RoHS	FCC Class A, UL, CE, UKCA, VCCI, BSMI, RCM | RoHS	FCC Class A, UL, CE, UKCA, CB, VCCI, KCC, BSMI, RCM | RoHS
Standard Warranty	90-day hardware and software			

Thunder ADC Physical Appliance (cont.)

	Thunder 3350S ADC[*9]	Thunder 4440 ADC	Thunder 5440 ADC	Thunder 5840 ADC
Modular License	50 Gbps	-	-	-
Performance				
Application Throughput (L4/L7)	50 Gbps/ 50 Gbps	78 Gbps / 70 Gbps	100 Gbps / 100 Gbps	115 Gbps / 113 Gbps
Layer 4 CPS	2 Million	2 Million	3 Million	4 Million
Layer 4 Concurrent Sessions	128 Million	128 Million	256 Million	256 Million
Layer 7 CPS (1:1)[*1]	750K	750K	950K	1.5 Million
SSL Bulk Throughput[*2]	30 Gbps	25 Gbps	45 Gbps	55 Gbps
SSL CPS[*2]	RSA: 60K ECDSA: 35K	RSA: 70K ECDSA: 42K	RSA: 100K ECDSA: 60K	RSA: 150K ECDSA: 90K
DDoS Protection (SYN flood) SYN/sec	16 Million	110 Million	166 Million	166 Million
Network Interfaces				
1GE (BASE-T)	6	0	0	0
1GE Fiber (SFP)	2	0	0	0
10/1GE Fiber (SFP+/SFP)	8 + 4[*8]	24	24	24
25/10GE Fiber (SFP28/SFP+)	0	0	0	0
40GE Fiber (QSFP+)	0	4	4	4
100/40GE Fiber (QSFP28/QSFP+)	0	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 14-core	Intel Xeon 6-core	Intel Xeon 12-core	Intel Xeon 18-core
Memory (ECC RAM)	64 GB	32 GB	64 GB	64 GB
Storage	SSD	SSD	SSD	SSD
Hardware Acceleration	Software	2 x FTA-4	2 x FTA-4	2 x FTA-4
TLS/SSL Security Acceleration	Hardware	Hardware on S model	Hardware on S model	Hardware on S models
Dimensions (inches)	1.75 (H) x 17.5 (W) x 18(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	1U	1U	1U
Unit Weight[*3]	18 lbs	32.5 lbs	32.5 lbs	32.5 lbs
Power Supply (DC option available)	Dual 750W RPS	Dual 1100W RPS	Dual 1100W RPS	Dual 1100W RPS
	80 Plus Gold efficiency, 100 - 240 VAC, 50 – 60 Hz			
Power Consumption (typical/max)[*3]	175W / 222W	360W / 445W	360W / 445W	375W / 470W
Heat in BTU/hour (typical/max)[*3]	598 / 758	1,229 / 1,519	1,229 / 1,519	1,280 / 1,604
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, FIPS 140-2[*5]	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[*5]	FCC Class A, UL, CE, UKCA, CB, VCCI, KCC, BSMI, RCM │ RoHS, FIPS 140-2[*5]
Standard Warranty	90-day hardware and software			

Thunder ADC Physical Appliance (cont.)

	Thunder 5840-11 ADC	Thunder 6440 ADC	Thunder 7440 ADC	Thunder 7440-11 ADC
Modular License	-	-	-	-
Performance				
Application Throughput (L4/L7)	115 Gbps / 113 Gbps	150 Gbps / 140 Gbps	220 Gbps / 200 Gbps	220 Gbps / 200 Gbps
Layer 4 CPS	4 Million	4 Million	7.5 Million	7.5 Million
Layer 4 Concurrent Sessions	256 Million	256 Million	256 Million	256 Million
Layer 7 CPS (1:1)[*1]	1.5 Million	1.4 Million	2.4 Million	2.4 Million
SSL Bulk Throughput[*2]	55 Gbps	60 Gbps	75 Gbps	75 Gbps
SSL CPS[*2]	RSA: 150K ECDSA: 90K	RSA: 150K ECDSA: 70K	RSA: 200K ECDSA: 70K	RSA: 200K ECDSA: 70K
DDoS Protection (SYN flood) SYN/sec	166 Million	238 Million	332 Million	332 Million
Network Interfaces				
1GE (BASE-T)	0	0	0	0
1GE Fiber (SFP)	0	0	0	0
10/1GE Fiber (SFP+/SFP)	48	48	48	48
25/10GE Fiber (SFP28/SFP+)	0	0	0	0
40GE Fiber (QSFP+)	0	4	4	0
100/40GE Fiber (QSFP28/QSFP+)	4	0	0	4
Management Ports	Ethernet mgmt. port, RJ-45 console port, Lights out management			
Hardware Specifications				
Processor	Intel Xeon 18-core	2 x Intel Xeon 10-core	2 x Intel Xeon 18-core	2 x Intel Xeon 18-core
Memory (ECC RAM)	64 GB / 128 GB[*4]	128 GB	128 GB	128 GB
Storage	SSD	SSD	SSD	SSD
Hardware Acceleration	2 x FTA-4	3 x FTA-4	3 x FTA-4	3 x FTA-4
TLS/SSL Security Acceleration	Hardware on S models	Hardware on S model	Hardware on S model	Hardware on S model
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 17.5 (W) x 30 (D)
Rack Units (mountable)	1U	1U	1U	1U
Unit Weight[*3]	34.3 lbs	36 lbs	35.7 lbs	35.7 lbs
Power Supply (DC option available)	Dual 1500W RPS	Dual 1100W RPS	Dual 1100W RPS	Dual 1500W RPS
	80 Plus Platinum efficiency, 100 - 240 VAC, 50 – 60 Hz			
Power Consumption (typical/max)[*3]	550W / 760W	480W / 550W	690W / 820W	820W / 950W
Heat in BTU/hour (typical/max)[*3]	1,877 /2,594	1,638 / 1,877	2,355 / 2,798	2,798 / 3,242
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, 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[*5]
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 interfaces, it's highly recommended to use A10 Networks' qualified optics/transceivers to ensure network reliability and stability.

*1 Layer 7 connections per second - measures number of new HTTP connections (1 HTTP request per TCP connection, without TCP connection reuse) within 1 second | *2 Tested with maximum SSL option. Cipher "TLS_RSA_WITH_AES_128_CBC_SHA256" with RSA 2K keys, unless noted, are used for RSA cases, "TLS_ECDHE_ECDSA_ WITH_AES_128_CBC_SHA256" with EC P-256 are used for PFS cases. | *3 With base model. Number varies by hardware options (e.g. SSL cards) | *4 With maximum SSL option | *5 For FIPS 140-2 Level 2 validated, FIPS models must be purchased | *6 Optional RPS available | *7 Thunder 1040-F comes with hardware TLS/SSL acceleration with 16GB RAM by default | *8 10Gbps speed only | *9 Performance numbers are measured with ACOS 5.2.1 release code | ˆ Certification in process

Thunder ADC SPE Physical Appliance Specifications

	Thunder 6655S ADC	Thunder 7655S ADC
Modular License	-	-
Performance		
Application Throughput (L4/L7)	185 Gbps / 170 Gbps	370 Gbps / 340 Gbps
Layer 4 CPS	6 Million	12 Million
Layer 4 Concurrent Sessions	384 Million	768 Million[*3]
Layer 7 CPS (1:1)[*1]	2.25 Million	4.5 Million
SSL Bulk Throughput[*2]	72.5 Gbps	145 Gbps
SSL CPS[*2]	RSA: 100K ECDSA: 70K	RSA: 200K ECDSA: 140K
DDoS Protection (SYN flood) SYN/sec	250 Million	500 Million
Network Interfaces		
100/40GE Fiber (QSFP28/QSFP+)	16	16
Management Ports	Ethernet mgmt. port, RJ-45 console port, Lights out management	
Hardware Specifications		
Processor (Intel Xeon)	28-core	2 x 28-core
Memory (ECC RAM)	192 GB	384 GB
Storage	SSD	SSD
Hardware Acceleration	FTA-5, SPE	2 x FTA-5, SPE
TLS/SSL Security Acceleration	Hardware	Hardware
Dimensions (Inches)	2.625 (H) x 17.5 (W) x 30 (D)	2.625 (H) x 17.5 (W) x 30 (D)
Rack Units (mountable)	1.5U	1.5U
Unit Weight	39 lbs	44.2 lbs
Power Supply (DC option available)	Dual 1500W RPS	Dual 1500W RPS
	80 Plus Platinum Efficiency, 100 - 240 VAC, 50 – 60 Hz	
Power Consumption (typical/max)	667W / 856W	1,121W / 1,300W
Heat in BTU/hour (typical/max)	2,276 /2,921	3,826 / 4,436
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, FIPS 140-2[*4]	FCC Class A, UL, CE, UKCA, CB, VCCI, BSMI, RCM │ RoHS, FIPS 140-2[*4]
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 interfaces, it's highly recommended to use A10 Networks' qualified optics/transceivers to ensure network reliability and stability.

[*1] Layer 7 connections per second - measures number of new HTTP connections (1 HTTP request per TCP connection, without TCP connection reuse) within 1 second │ [*2] Tested with Cipher "TLS_RSA_WITH_AES_128_CBC_SHA256" with 2K keys for RSA cases, "TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256" with EC P-256 for ECC cases │ [*3] Capacity has been increased (doubled) from ACOS 5.2.1-P7/6.0.1 onward │ [*4] For FIPS 140-2 Level 2 validated, FIPS models must be purchased │ ˆ Certification in process

Thunder ADC for Low-latency Appliance Specifications

	Thunder 3745
Performance	
Mean Latency L7[1]	1.901 µs
Max Latency L7	1.945 µs
Concurrent NAT Sessions	32,000
Network Interfaces	
10/1GE Fiber (SFP+/SFP)	4[3]
Management Ports	Ethernet mgmt. port, RJ-45 console port
Hardware Specifications	
Processor (Intel Xeon)	2 x 8-core
Memory (ECC RAM)	96 GB
Storage	SSD
Hardware Acceleration	FPM[2]
Dimensions (Inches)	3.5 (H) x 19 (W) x 27.5 (D)
Rack Units (mountable)	2U
Unit Weight	43.8 lbs
Power Supply (DC option available)	Dual 850 W RPS 80 Plus Platinum efficiency, 100 - 240 VAC, 50 – 60 Hz
Power Consumption (typical/max)	450W / 463W
Heat in BTU/hour (typical/max)	1,536 / 1,580
Cooling Fan (front-to-back airflow)	Hot swap smart fans
Operating Ranges	Temperature 0° - 40° C	Humidity 5% - 95%
Regulatory Certifications	FCC Class A, CE, VCCI, RCM, UKCA, UL/CB
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.

[1] 99th percentile. All the performance numbers are measured using FIX protocol with 670B packet size. | [2] Flow processing module (FPM) consists of FTA-3 (Flexible Traffic Accelerator) and SPE (Security and Policy Engine). | [3] 10Gbps speed only | ^ Certification in process

A10 Thunder on Dell Technologies OEM Solution Bundle Specifications

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[*3] 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 ADC Performance	Dell Technologies VEP4600	Dell Technologies R640		Dell Technologies R740	
		10GE NIC Model	100GE NIC Model	10GE NIC Model	100GE NIC Model
Application Throughput (L4 / L7)	10 Gbps / 7.5 Gbps	40 Gbps / 40 Gbps	60 Gbps / 60 Gbps	75 Gbps / 75 Gbps	100 Gbps / 100 Gbps
Connections Per Second (L4 / L7)[*1]	350K / 175K	2 Million / 1 Million	2 Million / 1 Million	2 Million / 1 Million	3 Million / 1 Million
SSL Bulk Throughput[*2]	2 Gbps	32 Gbps	38 Gbps	45 Gbps	66 Gbps
SSL CPS (RSA / ECDSA)[*2]	3.5K / 7K	100K / 45K	107K / 72K	120K / 60K	131K / 85K
Network Interfaces					
1GE (BASE-T)	6	2	2	2	2
10/1GE Fiber (SFP+/SFP)	4	6	2	10	10
100/40GE Fiber (QSFP28/QSFP+)	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 ADC	A10 Thunder MVP[+]
Appliaction Throughput (L4 / L7)	200 Gbps / 200 Gbps
Connections Per Second (L4 / L7)[*1]	4.7 million / 2.7 million
SSL Bulk Throughput[*2]	60 Gbps
SSL CPS (RSA / ECDSA)[*2]	166K / 83K
Network Interfaces	
25/10GE Fiber (SFP28/SFP+)	4
100/40GE 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	Dual 1400W redundant power supply

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

*1 Layer 7 connections per second - measures number of new HTTP connections (1 HTTP request per TCP connection, without TCP connection reuse) within 1 second

*2 Tested with TLS 1.3 and RSA (2K keys) cipher: "TLS_RSA_WITH_AES_128_CBC_SHA256" and ECDSA (EC P-256) cipher: "TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256"

*3 Singe 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.

+ 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 14-VM profile (6 vCPUs, 16 GB memory, 60GB storage, 4 SSL virtual functions (VFs) assigned on each vThunder)

Thunder ADC Software Appliance Specifications

vThunder ADC

Supported Hypervisors	VMware ESXi (VMXNET3, SR-IOV, PCI Passthrough), KVM (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 ADC for Public Cloud	AWS	Microsoft Azure	Google Cloud	Oracle Cloud
Product on Marketplace	Thunder ADC for AWS	Thunder ADC for Azure	Thunder ADC for GCP	vThunder Application Delivery Controller (ADC)
Throughput[*4]	Up to 10 Gbps	Up to 10 Gbps	Up to 10 Gbps	Up to 24 Gbps
Licenses[*4]	30-day trial license Pre-installed bandwidth license: • 20 Mbps, 100 Mbps, 200 Mbps, 500 Mbps, 1 Gbps, 5 Gbps, 10 Gbps BYOL bandwidth license FlexPool license	30-day trial license Pre-installed bandwidth license: • 20 Mbps, 100 Mbps, 200 Mbps, 500 Mbps, 1 Gbps, 5 Gbps, 10 Gbps BYOL bandwidth license FlexPool license	30-day trial license Pre-installed bandwidth license: • 20 Mbps, 100 Mbps, 200 Mbps, 500 Mbps, 1 Gbps, 5 Gbps, 10 Gbps BYOL bandwidth license FlexPool license	30-day trial license Pre-installed bandwidth license: • 1 OCPU to 24 OCPU BYOL bandwidth license FlexPool license

Thunder ADC Container

Image Format	Docker
Operating System	Reference operating system: • Ubuntu 16.04.3 LTS (Xenial Xerus) • RedHat Enterprise Linux version 7.6
System Requirements	Minimum requirement: • 1 or More Data Interface • 1 vCPU and 4 GB Memory
Licenses	BYOL bandwidth license FlexPool license
Trial Details	Contact A10 Sales

Thunder ADC 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 ADC)
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 | *4 Per-instance maximum throughput varies depending on instance type and configurations
* Licenses are tied to the maximum number of CPU cores that can be allocated to ACOS

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