Technical Specifications

Aviat CTR 8540

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System Parameters

General		
Throughput/Capacity Range		*per link*
	Airlink Capacity	11 - 436 Mbit/s
	Native Carrier Ethernet/IP	11 - 554 Mbit/s
Memory		2 Gb SD card
		serialized, includes licenses and configuration as ordered
Networking		
Switching Capacity		5 Gbit/s
Packet Buffer		23 MB - Configurable per port & per queue
Radio Networking		
Frequency Band options	*ETSI*	5, L6/U6, 7/8, 10, 11, 13, 15, 18, 23, 26, 28, 32, 38 and 42 GHz
	ANSI	5.8, L6/U6, 7/8, 11, 13, 15, 18, 23 and 38 GHz
Adaptive Coding and Modulation	*Modulation Options*	QPSK, 16, 32, 64, 128, 256, 512 and 1024 QAM
		Modulation range configurable
Nodal Capacity		Up to 8 nodal IF links using RACx2, or 4 using RACx1
	ODUs supported	Eclipse ODU 600, ODU600sp, ODU 300hp
	All-outdoor supported	Aviat WTM 3100, WTM 3200, WTM 3300, 3rd party
Redundancy		1+1 HSB, SD or FD*, scalable to 4x(1+1)
Co-Channel Operation with XPIC	*RACx2*	ETSI: >15dB XPOL improvement
	RACx2	ANSI: >20dB XPOL improvement
Interfaces		
Ethernet switch ports	*RJ-45*	8x 10/100/1000Base-T
	SFP	4x 1000Base-X (unpopulated)
Tributary connectors	*HDR-50 (x2)*	16xE1 or 16xDS1
Management connection	*RJ-45*	V.24 Serial Maintenance port
Direct Power Feed	*2-pin D-sub M/F*	-48 Vdc
Protection Port (for Ethernet switch protection)*	*Quad SFP port*	High speed interface to standby chassis for protection
Diversity Port (for RF Diversity protection)*	*Quad SFP port*	High speed interface to standby chassis for diversity
Plug-Ins		
Universal Plug-In slots		Slots 1-4 for optional plug-ins
Plug-In Modules (Optional)	*RACx1*	Single IF radio Interface
	RACx2	Dual IF radio interface
	PoEx2	Dual PoE++ 10/100/1000Base-X
	PWR	Power supply for redundancy
Fault and Configuration Management		
Local/remote Configuration Tool		Command Line Interface (CLI) or Web UI
Network Management		Aviat Networks ProVision™ EMS
Protocol		SNMP v1 / v2c / v3
Remote Monitoring		RMON V1, V2
Port Mirroring		multiple ports

* Future Release

Standards Compliance		
EMC		EN 301 489-1, EN 301 489-4, EN 300 386, FCC CFR 47 Part 15, ICES-003
Operation		EN 300 019, Class 3.1E
Storage		EN 300 019, Class 1.2
Transportation		EN 300 019, Class 2.3
Safety		IEC/EN 60950-1, UL 60950-1,IEC/EN 62368-1, UL 62368-1, CAN/CSA C22.2 No. 62368-1-14
Electrical and Mechanical		
Base chassis input voltage		-48 Vdc nominal
Base chassis voltage range		-40.5 Vdc to -57 Vdc
Power Consumption	*Chassis - Switch, Management and TDM*	45 W
	Fan (when operational)	up to 12 W
	Complete System Range	45 - 200 W
Chassis dimension		44 mm (1RU) x 445 mm x 240 mm/ 1RU x 19 in x 9.0 in
Chassis weight		4.5 kg / 9.9 lb
Environmental		
Operating Temperature		-5° to +55° C / 23° to +131° F
Humidity		5% to 95%, non-condensing
Altitude		4,500 m / 15,000 ft.

Networking Protocols and Standards

Carrier Ethernet and Layer 2 Services		
MAC address register		8000 entries
Jumbo Frames		up to 10k bytes
QoS (Quality of Service)		
Quality of Service and Policies	*Packet Priority*	IEEE 802.1D
	Port Based Prioritization	Yes
	IEEE 802.1p QoS/CoS Bits	Yes
	DSCP	Yes
	MPLS EXP bits	Yes*
	Remarking	MPLS Exp* and DSCP to 802.1p
	Transmission Queues	8
	Queue Handling	Strict, WRR, DFQ, WRED, hybrid (Strict+WRR)
VLAN Services		
VLAN Services	*VLAN Tagging*	IEEE 802.1Q
	Q-In-Q (Provider bridging)	IEEE 802.1ad
	VLAN Translation	Yes
Congestion Management		
	Flow Control	IEEE 802.3x*
	Ingress Policing	TrTCM (per port and per flow)
		CIR, EIR, CBS, EBS
	Broadcast/Multicast Storm Protection	Yes
Link Aggregation		
Layer 1 Link Aggregation (L1LA)	*No. of Radio Bearers*	1 x 8 or 2 x 4
(RACx1 and RACx2)	*Reconvergence Time*	<10 ms
		Hitless ACM Support
	LAG Throughput Efficiency	90-95%
LAG (Layer 2)		IEEE 802.1AX static
		Layer 2 and Layer 3 hashing
		User ports and channels (LACP on user ports only)
Ethernet Protection		
Protocols	*ERP*	ITU-T G.8032v2
	MSTP	IEEE 802.1s
	RSTP	IEEE 802.1w
OAM		
Ethernet Link Layer OAM		IEEE 802.3ah
Ethernet Service OAM	*IEEE 802.1ag/ITU-T Y.1731 CFM*	ETH-CC, ETH-LB, ETH-LT, ETH-RDI, ETH-AIS
	*ITU-T Y.1731 PM**	ETH-LM, ETH-DM and ETH-DVM

* Future Release

Management and Traffic Analysis

Management	*Web-based GUI*	Supports IPv4
	Command Line Interface	CLI
	Telnet Client	Supports IPv4
	Protocol	SNMP v1/v2c
	RMON v1/v2	RFC 2819/RFC 2021
Network Management		Aviat Provision EMS

Timing Protocol

Internal Reference	Built-in Stratum-3
Synchronous Ethernet	ITU-T G.8262
ESMC/SSM	ITU-T G.8264
Precision Time Protocol	IEEE 1588v2 Precision Time Protocol (PTP) Agnostic Mode (High Priority QoS VLAN) Transparent Clock - Better than +/-1.5us*

Circuit Emulation/Pseudowire Services

Point to point connection of E1 or DS1 circuits over IP	CES SoETH (MEF 8)

Base Chassis Specifications

CTR 8500 Chassis		
Universal Plug-In Module Slots		4
Logo LED Indicator		1x Tri-state (Status)
Unit LED Indicators		2x Tri-state (Online "ON", Status "OK")
Switch Ports		
Interfaces		12x user ports
Ethernet Standards Compliance	*Ethernet*	IEEE 802.3
	Networking Protocols	IPv4 and IPv6
User Ports	*RJ-45*	8x 10/100/1000Base-T, auto negotiate
	SFP	4x1000Base-X
Optical SFP Options	*1550 nm single mode*	1000Base-ZX
	1310 nm single mode	1000Base-LX
	850 nm multimode	1000Base-SX
Electrical SFP Options	*RJ-45*	1000Base-T
LED Indicators	*RJ-45, SFP*	"Activity", "Link"
Universal Plug-in Slot		
Slot Designations		Slot 1 thru 4
Module Plug-Ins Supported		RACx2, RACx1
		PoEx2
		PWR (must be used in sSlot 1)
		PWR+Alarm I/O*
Tributary Connection		
Connector Type		2x 50-pin HDR
Interface, configurable	*Electrical*	1 to 16x 1.544 Mbit/s (DS1)
	Electrical	1 to 16x 2.048 Mbit/s (E1)
Electrical interface parameters - E1	*Standards Compliance*	Compliant to ITU-T Rec. G.703, G.823
	Line code	HDB3
	Impedance	75Ω unbalanced or 120Ω balanced,
Electrical interface parameters - DS1	*Standards Compliance*	Compliant to ITU-T Rec. G.703, G.824
	Line code	AMI or B8ZS, configurable
	Impedance	100 Ω balanced
Circuit Emulation /Pseudowire Services		Supported on all T1/E1 interfaces
		CES SoETH (MEF 8)
NMS Interface		
Serial Maintenance Interface	*Standard*	Complies to TIA/EIA-232C (v.24)
	Speed	115.2 kbps
	Connector	8-pin RJ-45
Power Connector		
Connector		2-pin D-sub M/F 2W2C
Electrical	*DC input voltage, nominal*	-48 Vdc
	DC Supply input range	-40.5 to -57 Vdc
	DC Fuse type and rating	25A Slo-Blo
Protection Port (Ethernet switch protection)*		
Interface		Quad SFP port
LED Indicator		1x Tri-state LED (Status)
Diversity Port (RF Diversity protection)*		
Interface		Quad SFP port
LED Indicator		1x Tri-state LED (Status)

* Future Release

Radio Access Card (RAC) Modules

General

IF connectors		SMA
LED Indicators	*RAC module*	2x Tri-state (Online "ON", Status "OK")
Dimensions (including front panel and rear connector)		18 mm x 104 mm x 230 mm / 0.70 in x 4.0 in x 9.0 in
Weight		0.27 kg / 0.6 lb

RACx2 Dual IF Radio Interface

IF Connectors		2 x SMA
RFUs supported		ODU600, ODU600sp, IRU600*, ODU300hp
Capacities supported		Ethernet to 554 Mbit/s [1] per port
Modulations supported	*Fixed Modulation*	QPSK, 16, 32, 64, 128, 256, 512, 1024QAM
Adaptive Coding and Modulation	*Modulation Options*	QPSK, 16, 32, 64, 128, 256, 512, 1024QAM
Configurations Supported		1+0, 2+0, 1+1, SD, CCDP/XPIC
Power consumption		up to 28 W
ODU LED Indicators	*ODU1, ODU2*	2x Tri-state (IF "ON", IF Status "OK")

RACx1 Single IF Radio Interface

IF Connectors		1 x SMA
RFUs supported		ODU600, ODU600sp, IRU600*, ODU300hp
Capacities supported		Ethernet to 554 Mbit/s [1] per port
Modulations supported	*Fixed Modulation*	QPSK, 16, 32, 64, 128, 256, 512, 1024QAM
Adaptive Coding and Modulation	*Modulation Options*	QPSK, 16, 32, 64, 128, 256, 512, 1024QAM
Configurations Supported		1+0; 2+0 or 1+1 with partner RACx1 or RACx2
Power consumption		up to 20 W
ODU LED Indicators	*ODU1*	2x Tri-state (IF "ON", IF Status "OK")

All specifications are typical values unless otherwise stated, and are subject to change without notice.

[1] Maximum Ethernet Throughput figures are L1 based upon 64 byte frames, and will vary depending upon actual mix of traffic frame sizes.

* Future Release

Non-RAC Modules

PWR (Power) Module [1]		
Operation		Provides 1+1 hitless protection for base chassis power converter
Connectors		2-pin D-sub M/F 2W2
Electrical	*DC input voltage, nominal*	-48 Vdc
	DC Supply input range	-40.5 to -57 VDC
	DC Fuse type and rating	25A Slo-Blo
Module LED Indicators		2x Tri-State (Online "ON", Status "OK")
Dimensions (including front panel and rear connector)		18 mm x 104 mm x 230 mm / 0.70 in x 4.0 in x 9.0 in
Weight		0.21 kg / 0.46 lb
Power Consumption		15W
POEx2 Module - Dual Power over Ethernet Interface (PoE++)		
Module LED Indicators		2x Tri-State (Online "ON", Status "OK")
PoE Output power		up to 65W per PoE port
User Ports (Port 1, Port 2)	*RJ-45*	2x 10/100/1000Base-T
Ethernet Standards Compliance	*Ethernet*	IEEE 802.3
	Networking Protocols	IPv4
User Port LED Indicators	*RJ-45*	"Link Status", "Activity"
Dimensions (including front panel and rear connector)		18 mm x 104 mm x 230 mm
Weight		0.23 kg / 0.5 lb
Power Consumption		17 W
FAN Plug-In Module (required module)		
Fans		4
LED Indicator		1x Tri-state ("Fan" Status)
Power consumption	*Typical*	12 W
Dimensions (including front panel and rear connector)		44 mm x 59 mm x 230 mm / 1.7 in x 2.3 in x 9.0 in
Weight		0.28 kg / 0.62 lb

[1] Install in Slot 1 only

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