



Specifications



Note

The terms "Unidirectional Path Switched Ring" and "UPSR" may appear in Cisco literature. These terms do not refer to using Cisco ONS 15xxx products in a unidirectional path switched ring configuration. Rather, these terms, as well as "Path Protected Mesh Network" and "PPMN," refer generally to Cisco's path protection feature, which may be used in any topological network configuration. Cisco does not recommend using its path protection feature in any particular topological network configuration.

This appendix contains hardware and software specifications for the ONS 15454.

Bandwidth

The ONS 15454 has the following bandwidth specifications:

- Total bandwidth: 240 Gbps
- Data plane bandwidth: 160 Gbps
- SONET plane bandwidth: 80 Gbps

Configurations

The ONS 15454 can be configured as follows:

- Two-fiber path protection
- Path protected mesh network (PPMN)
- Two-fiber bidirectional line switch ring (BLSR)
- Four-fiber BLSR
- Add-drop multiplexer
- Terminal mode
- Regenerator mode
- Hubbed rings
- Multihubbed rings
- Point-to-point

- Linear
- Linear with optical add/drop multiplexing (OADM)

Cisco Transport Controller

Cisco Transport Controller (CTC), the ONS 15454 craft interface software, has the following specifications:

- 10 BaseT
- TCC+/TCC2 access: RJ-45 connector
- Backplane access: LAN pin field

External LAN Interface

The ONS 15454 external LAN interface has the following specifications:

- 10 BaseT Ethernet
- Backplane access: LAN pin field

TL1 Craft Interface

The ONS 15454 TL1 craft interface has the following specifications:

- Speed: 9600 bps
- TCC+/TCC2 access: EIA/TIA-232 DB-9 type connector
- Backplane access: CRAFT pin field

Modem Interface

The ONS 15454 modem interface has the following specifications:

- Hardware flow control
- TCC+/TCC2: EIA/TIA-232 DB-9 type connector

Alarm Interface

The ONS 15454 alarm interface has the following specifications:

- Visual: Critical, Major, Minor, Remote
- Audible: Critical, Major, Minor, Remote
- Alarm contacts: 0.045 mm, -48 V, 50 mA
- Backplane access: Alarm pin fields

EIA Interface

The ONS 15454 EIA interface has the following specifications:

- SMB: AMP #415504-3 75-ohm, 4-leg connectors
- BNC: Trompeter #UCBJ224 75-ohm 4 leg connector (King or ITT are also compatible)
- AMP Champ: AMP#552246-1 with #552562-2 bail locks

BITS Interface

The ONS 15454 BITS interface has the following specifications:

- 2 DS-1 building integrated timing supply (BITS) inputs
- 2 derived DS-1 outputs
- Backplane access: BITS pin field

System Timing

The ONS 15454 has the following system timing specifications:

- Stratum 3 per Telcordia GR-253-CORE
- Free running accuracy: ± 4.6 ppm
- Holdover stability: 3.7×10^{-7} /day, including temperature (< 255 slips in first 24 hours)
- Reference: External BITS, line, internal

Power Specifications

System Power

The ONS 15454 has the following power specifications:

- Input power: -48 VDC
- Power consumption: 55 W (fan tray only); 650 W (maximum draw w/cards)
- Power requirements: -42 to -57 VDC
- Power terminals: #6 Lug
- ANSI shelf: 100-A fuse panel (minimum 30mA fuse per shelf)
NEBS3 shelf: 80-A fuse panel (minimum 20 A fuse per shelf)

Cards

[Table B-1](#) provides power consumption information for the ONS 15454 cards.

Table B-1 Individual Card Power Requirements

Card Type	Card Name	Watts	Amperes	BTU/Hr.
Control Cards	TCC+	9.82	0.20	33.53
	TCC2	26.00	0.54	88.8
	XC	29.00	0.60	99
	XCVT	34.40	0.72	117.46
	XC10G	34.40	.72	117.46
	AIC	6.01	0.12	20.52
	AIC-I	8	0.17	27.3
	AEP	3	(from +5 VDC from AIC-I)	10.2
Electrical Cards	EC1-12	36.60	0.76	124.97
	DS1-14	12.60	0.26	43.02
	DS1N-14	12.60	0.26	43.02
	DS3-12	38.20	0.79	130.43
	DS3N-12	38.20	0.79	130.43
	DS3-12E	26.80	0.56	91.51
	DS3N-12E	26.80	0.56	91.51
	DS3XM-6 Transmux	20	0.42	68

Table B-1 Individual Card Power Requirements (continued)

Card Type	Card Name	Watts	Amperes	BTU/Hr.
Optical Cards	OC3 IR 4	19.20	0.40	65.56
	OC3 IR 4/STM1 SH 1310	19.20	0.40	65.56
	OC3 IR 4/STM1SH 1310-8	26.00	0.48	78.5
	OC12 IR 1310	10.90	0.23	37.22
	OC12 LR 1310	9.28	0.19	31.68
	OC12 LR 1550	9.28	0.19	31.68
	OC12 LR/STM4 LH 1310	9.28	0.19	31.68
	OC12 LR/STM4 LH 1550	9.28	0.19	31.68
	OC12 IR/STM4 SH 1310-4	35.60	0.74	121.6
	OC48 IR 1310	32.20	0.67	109.94
	OC48 LR 1550	26.80	0.56	91.50
	OC48 IR/STM16 SH AS 1310	37.20	0.77	127.01
	OC48 LR/STM16 LH AS 1550	37.20	0.77	127.01
	OC48 ELR/STM16 EH 100 GHz	31.20	0.65	106.53
	OC48 ELR 200 GHz	31.20	0.65	106.53
	OC192 SR/STM64 IO H 1310	48.00	1.00	163.68
	OC192 IR/STM64 SH 1550	48.00	1.00	163.68
	OC192 LR/STM64 LH 1550	72.20	1.50	246.52
	OC192 LR/STM64 LH 15xx.xx	48.00	1.00	163.68
	TXP_MR_10G	35.00 ¹	0.73	119.5
	MXP_2.5G_10G	50 ¹	1.04	170.7
	2.5G_MR_TXP	35.00 ²	0.73	119.5
	2.5G_MR_TXP-P	50 ¹	1.04	170.5

Table B-1 Individual Card Power Requirements (continued)

Card Type	Card Name	Watts	Amperes	BTU/Hr.
DWDM Cards	OSCM	Nominal 23	Nominal 0.48	Nominal 78.48
		Maximum 26	Maximum 0.54	Maximum 88.71
	OSC-CSM	Nominal 24	Nominal 0.5	Nominal 81.89
		Maximum 27	Maximum 0.56	Maximum 92.12
	OPT-PRE	Minimum 25	Minimum 0.52	Minimum 85.3
		Nominal 30	Nominal 0.5	Nominal 102.36
		Maximum 39	Maximum 0.81	Maximum 88.71
	OPT-BST	Nominal 30	Nominal 0.63	Nominal 102.36
		Maximum 39	Maximum 0.81	Maximum 88.71
	32 MUX-O	Nominal 16	Nominal 0.33	Nominal 54.59
		Maximum 25	Maximum 0.52	Maximum 85.3
	32 DMX-O	Nominal 16	Nominal 0.33	Nominal 54.59
		Maximum 25	Maximum 0.52	Maximum 85.3
	4MD-xx.x	Nominal 17	Nominal 0.35	Nominal 58.0
		Maximum 25	Maximum 0.52	Maximum 85.3
	AD-1C-xx.x	Nominal 17	Nominal 0.35	Nominal 58.0
		Maximum 25	Maximum 0.52	Maximum 85.3
	AD-2C-xx.x	Nominal 17	Nominal 0.35	Nominal 58.0
		Maximum 25	Maximum 0.52	Maximum 85.3
	AD-4C-xx.x	Nominal 17	Nominal 0.35	Nominal 58.0
		Maximum 25	Maximum 0.52	Maximum 85.3
	AD-1B-xx.x	Nominal 17	Nominal 0.35	Nominal 58.0
		Maximum 25	Maximum 0.52	Maximum 85.3
	AD-4B-xx.x	Nominal 17	Nominal 0.35	Nominal 58.0
		Maximum 25	Maximum 0.52	Maximum 85.3
Ethernet Cards	E100T-12	65	1.35	221.93
	E1000-2	53.50	1.11	182.67
	E100T-G	65	1.35	221.93
	E1000-2-G	53.50	1.11	182.67
	G1000-4	63.00	1.31	215.11

1. Calculated power; measured power was not available at the time of publication.
2. Calculated power; measured power was not available at the time of publication.

Environmental Specifications

System

The ONS 15454 has the following environmental specifications:

- Operating temperature: 0 to +55 degrees Celsius; –40 to +65 degrees Celsius with industrial temperature rated cards
- Operating humidity: 5 to 95%, noncondensing

Cards

Table B-2 provides temperature ranges and product names for ONS 15454 cards.



Note

The I-Temp symbol is displayed on the faceplate of an I-Temp compliant card. A card without this symbol is C-Temp compliant.

Table B-2 Card Temperature Ranges and Product Names

Card Type	Card Name	C-Temp Product Name (32 to 131 degrees Fahrenheit, 0 to +55 degrees Celsius)	I-Temp Product Name (–40 to 149 degrees Fahrenheit, –40 to +65 degrees Celsius)
Control Cards	TCC+	15454-TCC+	15454-TCC+T
	TCC2	—	15454-TCC2
	XC	15454-XC	15454-XC-T
	XCVT	15454-XC-VT	15454-XC-VT-T
	XC10G	15454-XC-10G	—
	AIC	15454-AIC	15454-AIC-T
	AIC-I	—	15454-AIC-I
	AEP	—	15454-AEP
Electrical	EC1-12	15454-EC1-12	15454-EC1-12-T
	DS1-14	15454-DS1-14	15454-DS1-14-T
	DS1N-14	15454-DS1N-14	15454-DS1N-14-T
	DS3-12	15454-DS3-12	15454-DS3-12-T
	DS3N-12	15454-DS3N-12	15454-DS3N-12-T
	DS3-12E	—	15454-DS3-12E-T
	DS3N-12E	—	15454-DS3N-12E-T
	DS3XM-6 (Transmux)	15454-DS3XM-6	15454-DS3XM-6-T

Table B-2 Card Temperature Ranges and Product Names (continued)

Card Type	Card Name	C-Temp Product Name (32 to 131 degrees Fahrenheit, 0 to +55 degrees Celsius)	I-Temp Product Name (–40 to 149 degrees Fahrenheit, –40 to +65 degrees Celsius)
Optical	OC3 IR 4/STM1 SH 1310	15454-OC34IR1310	15454-OC34I13-T
	OC3 IR/STM1 SH 1310-8	15454-OC3I8-1310	—
	OC12 IR/STM4 SH 1310	15454-OC12IIR1310	15454-OC12II13-T
	OC12 LR/STM4 LH 1310	15454-OC12ILR1310	15454-OC12IL13-T
	OC12 LR/STM4 LH 1550	15454-OC12ILR1550	15454-OC12IL15-T
	OC12 IR/STM4 SH 1310-4	15454-OC12I4-1310	—
	OC48 IR 1310	15454-OC48IIR1310	—
	OC48 LR 1550	15454-OC48ILR1550	—
	OC48 IR/STM16 SH AS 1310	15454-OC48IIR1310A	—
	OC48 LR/STM16 LH AS 1550	15454-OC48ILR1550A	—
	OC48 ELR/STM16 EH 100 GHz	15454-OC48E-1-xx.xx (all wavelengths)	—
	OC48 ELR/STM16 EH 200 GHz	15454-OC48E-xx.xx (all wavelengths)	—
	OC 192 SR/STM64 IO 1310	15454-OC192IO1310	—
	OC192 IR/STM64 SH 1550	15454-OC192IR1550	—
	OC192 LR/STM64 LH 1550	15454-OC192LR1550	—
	OC192 LR/STM64 LH ITU 15xx.xx	15454-OC192LR15xx	—
	TXP_MR_10G	15454-TXPMR10G	—
	MXP_2.5G_10G	15454-MXP2.5G10G	—
	2.5G_MR_TXP	15454-2.5GMRTXP	—
	2.5G_MR_TXP-P	15454-2.5GMRTXP-P	—
DWDM	OSCM	15454-OSCM	—
	OSC-CSM	15454-OSC-CSM	—
	OPT-PRE	15454-OPT-PRE	—
	OPT-BST	15454-OPT-BST	—
	32 MUX-O	15454-32 MUX-O	—
	32 DMX-O	15454-32 DMX-O	—
	4MD-xx.x	15454-4MD-xx.x	—
	AD-1B-xx.x	15454-AD-1B-xx.x	—
	AD-2C-xx.x	15454-AD-2C-xx.x	—
	AD-4B-xx.x	15454-AD-4B-xx.x	—
	AD-1C-xx.x	15454-AD-1C-xx.x	—
	AD-4C-xx.x	15454-AD-4C-xx.x	—

Dimensions

The ONS 15454 shelf assembly has the following dimensions:

- Height: 18.5 in. (40.7 cm)
- Width: 19 or 23 in. (41.8 or 50.6 cm) with mounting ears attached
- Depth: 12 in. (26.4 cm) (5 in. or 12.7 cm projection from rack)
- Weight: 55 lb (24.947 kg) empty

