



## Specifications

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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
- 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
- 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
- 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:  $\pm 4.6$  ppm
- Holdover stability:  $3.7 \times 10^{-7}$ /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:  $-40.5$  to  $-57$  VDC
- Power terminals: #6 Lug
- ANSI shelf: 100-A fuse panel (minimum 30 A fuse per shelf)  
HD shelf: 100-A fuse panel (minimum 35 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	TCC2	19.20	0.4	66.8
	XC	29.00	0.60	99
	XCVT	34.40	0.72	117.46
	XC10G	48	1	163.68
	AIC	6.01	0.12	20.52
	AIC-I	4.8	0.1	15.3
	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
	DS3i-N-12	30	0.63	102.4
	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	0.2	31.68
	OC12 LR 1550	9.28	0.2	31.68
	OC12 LR/STM4 LH 1310	9.00	0.2	31.68
	OC12 LR/STM4 LH 1550	9.28	0.2	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	41.80	.90	132.00
	OC192 IR/STM64 SH 1550	48.00	1.00	163.68
	OC192 LR/STM64 LH 1550	41.80	.9	132.00
	OC192 LR/STM64 LH 15xx.xx	62.40	1.30	214.00
	TXP_MR_10G	35.00 <sup>1</sup>	0.73	119.5
MXP_2.5G_10G	50 <sup>1</sup>	1.04	170.7	
TXP_MR_2.5G	35.00 <sup>2</sup>	0.73	119.5	
TXPP_MR_2.5G	50 <sup>1</sup>	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
	ML100T-12	53	1.10	181.0
	ML1000-2	49 (incl. SFPs)	1.02	167.3
<b>Fibre Channel</b>	FC_MR-4	60 <sup>1</sup>	1.25	212.00

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	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
	DS3i-N-12	15454-DS3i-N-12	—
	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-OC12I13-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	—
	TXP_MR_2.5G	15454-2.5GMRTXP	—
	TXPP_MR_2.5G	15454-2.5GMRTXP-P	—



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)
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-4B-xx.x	15454-AD-4B-xx.x	—
	AD-1C-xx.x	15454-AD-1C-xx.x	—
	AD-2C-xx.x	15454-AD-2C-xx.x	—
AD-4C-xx.x	15454-AD-4C-xx.x	—	
Fibre Channel	FC_MR-4	15454-FC_MR-4	—

## 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

