

Data Sheet

1 FINITY T600 Transport Blade

Flexible transponder designed for programmable hyperscale transport

1 FINITY™ T600 Blade at a Glance

- Modular 1RU blade design
- Maximum 2.4 Tbps capacity per blade
- 24 × 100 GbE (QSFP28) client ports
- 4 × 200/300/400/500/600G (fixed DCO) network ports
- CLI script, SNMP, NETCONF, or gNMI API management
- Automation-readiness tools (zero-touch provisioning and streaming telemetry)

Product Overview

The 1 FINITY T600 is a programmable transponder supporting onboard software-provisioned data rates up to 600 Gbps over a single wavelength, using high-performance components and electronics.

Powered by third-generation digital signal processor (DSP) technology developed by NTT Electronics (NEL) in partnership with Fujitsu, the T600 delivers sophisticated and flexible modulation schemes and variable forward error correction (FEC). The advanced modulation flexibility provides optimum reach, capacity and power consumption, thereby enabling network operators to reduce cost per bit per kilometer for long-haul, metro ROADM or metro point-to-point applications.

Modular Blade-Based Design

The T600 maximizes capacity, reduces power consumption, and its compact, stackable 1RU form factor greatly increases rack-space density. Each blade supports two transponder plug-in units with an integrated CPU complex, as well as redundant, replaceable fan modules and AC/DC power supply units. The plug-in units can each support a 1.2 Tbps transponder with 12 QSFP28 based clients mapping to two fixed Digital Coherent Optics (DCO) network ports (four per blade), achieving a total system density of 2.4 Tbps per 1RU. The modular design also enhances availability by allowing most sources of failure to be repaired quickly, minimizing mean time to repair (MTTR).



Hyperscale Transport: Flexibility, Capacity, Automation and Security

By providing industry-leading flexibility, capacity, automation and security, the T600 continues the 1 FINITY transport evolution. The T600 platform enables data center operators and cloud providers to support the demands of the hyperconnected digital economy and deliver high-speed transport at programmable data rates from 200, 300, 400, 500 or 600 Gbps over a single wavelength.

The T600's software-selectable DWDM modes enable deployment in networks that employ the ITU G.694.1 DWDM flexible grid options. This enables variable capacity from 12.8 Tbps to 38.4 Tbps per fiber. With Federal Information Processing Standard (FIPS) 140-2 Level 2 and AES-256 Layer 1 encryption, the T600 is fully secure on the data, control and management planes, and has enhanced physical security to protect against unauthorized physical access.

1 FINITY: A Revolutionary, Disaggregated Platform

For network operators seeking an open, simple, scalable architecture to meet escalating bandwidth demand, Fujitsu provides 1 FINITY, a revolutionary disaggregated platform that delivers unprecedented flexibility, scalability, and efficiency.

Unlike the traditional converged systems other vendors provide, the programmable, blade-centric design of 1 FINITY offers a pay-as-you grow approach with low initial investment. Additional benefits include high rack space utilization, evergreen technology design, and operational convergence,

Ideal for Cost-Efficient Data Center Interconnect

The 1FINITY T600 employs the FSS2 system software. This software enables machine-to-machine automation via Dynamic Host Configuration Protocol (DHCP) announcements for zero-touch provisioning.

1FINITY platforms employ NETCONF and industry-standard OpenConfig, gRPC, and gNMI for streaming telemetry using XML or JSON formats. These protocols are easily used in combination with many of the open source tools available to operators.

Additionally, 1FINITY supports the ability to extend automation and operational behavior by supporting software development kits (SDKs) for loading applications directly into them.

Specific automation features include:

- Load/save configuration
- Streaming telemetry
- Zero-touch provisioning
- LLDP snooping

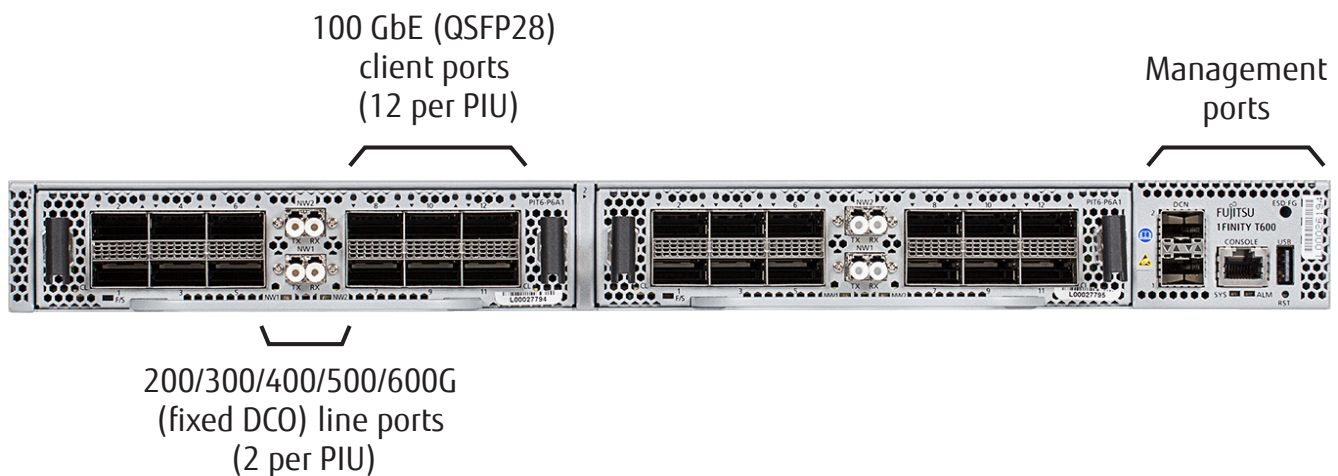
Management

The 1FINITY T600 employs a Linux-based operating system and is simple to manage using NETCONF, SNMP, a command-line Interface (CLI), or CLI scripts. When using a CLI in a standalone deployment, provisioning consists of simply turning on the interfaces and selecting the wavelength. With the software control revolution solidly underway, the 1FINITY T600 easily fits into an SDN management architecture such as the Fujitsu Virtuora® network control solution.

Key Applications

The 1FINITY T600 is built for metro and long-haul applications, but its primary application is data center interconnect (DCI). The T600 is ideal for providing flexible, cost-efficient optical connections between data centers or from a data center to an Internet exchange point for peering.

The T600 can be deployed in combination with other 1FINITY blades to provide enhanced solutions. For example, by connecting the 1FINITY T400 blade to the client side of the T600, you can provide aggregation for 10 GbE to 100G. In a ROADM network, the line side of the T600 is compatible with virtually any ROADM platform.



Cost-efficient, pluggable T600 optical connection options

Technical Specifications

Base System

System Configuration	1RU blade
PIU per Blade	2
Management Port (DCN)	10BASE-T/100BASE-T/1000BASE-T/1000BASE-SX/1000BASE-LX10
Console Port	RS232 RJ-45 connector
USB	Version 2.0
Front LEDs	System, ALM, DCN, Client, Network, Fail/Service
Fan	5 replaceable fans
Power Supply	Dual replaceable AC or DC power supplies
Software OS	Linux
Security	FIPS 140-2 Level 2

Line Side

Line Ports per Blade	4
Line Rate	200, 300, 400, 500 and 600 Gbps
Optical Module	Fixed DCO PIU
Nyquist Filtering	Yes
Encryption	Layer 1 encryption (AES-256)
Optical Channels	200G/carrier: 50 GHz P2P, 50 GHz ROADM, DP-16QAM 200G/carrier: 62.5 GHz P2P, 75 GHz ROADM, 6b4D-2A8PSK 300G/carrier: 62.5 GHz P2P, 75 GHz ROADM, 6b4D-2A8PSK, DP-16QAM 400G/carrier: 62.5 GHz P2P, 75 GHz ROADM; DP-32QAM 400G/carrier: 75 GHz P2P, 87.5 GHz ROADM, DP-16QAM 500G/carrier: 75 GHz P2P, DP-32QAM 600G/carrier: 75 GHz P2P, DP-64QAM
Chromatic Dispersion Tolerance (ps/nm)	200G DP-16QAM: +/-90000 200G 6b4D-2A8PSK: +/-90000 300G 6b4D-2A8PSK: DP-16QAM +/-68800 400G DP-16QAM: +/-25400 400G DP-32QAM: +/-67000 500G DP-32QAM: +/-25400 600G DP-64QAM: +/-23700
State-of-Polarization Tracking	31 (krad/s)
Tx Wavelength	1528.72 ~ 1566.77 nm
Rx Wavelength	1528.72 ~ 1566.77 nm
Tx Power Range	Min: -5.0 dBm Max: +1 dBm

Rx Power Range (dBm)

RX input target signal power range:

- 600G: -5 to +1
- 500G: -10 to +1
- 400G: -20 to +1
- 400G (DP-32QAM): -15 to +1
- 200/300G: -22 to +1

RX input total power range:

- 600G: -5 to +13
- 500G: -10 to +13
- 400G: -20 to +13
- 400G (DP-32QAM): -15 to +13
- 200/300G: -22 to +13

Port-to-Port Latency (Client Port to Line Port)

200G: 13.960 μ s
200G (DP-16QAM): 12.810 μ s
300G: 39.508 μ s
400G: 23.195 μ s
500G: 26.130 μ s
600G: 17.886 μ s

PDL Tolerance

200G-400G: 6 dB
500G-600G: 4 dB

PMD (Average DGD) Tolerance

200G DP-16QAM: 55 ps
200G/300G: 36 ps
400G/500G/600G: 33 ps

Reach (Estimates based on test results)

2000 km: 200G/carrier, DP-16QAM
3200 km: 200G/carrier, 6b4D-2A8PSK
1760 km: 300G/carrier, 6b4D-2A8PSK, DP-16QAM
1200 km: 400G/carrier, DP-16QAM
468 km: 400G/carrier, DP-32QAM
120 km: 500G/carrier, DP-32QAM
65 km: 600G/carrier, DP-64QAM

Client Side

Client Ports per Blade	12 per PIU (24 per blade)
Optical/Electrical Interface	QSFP28, LR4/SR4, AOC, CWDM4
Supported Interfaces	100 GbE

Performance Monitoring

Service PMS	24-hour, 15-minute, metered
OTN PMS	Yes
Ethernet RMON PMS	Yes
Streaming Telemetry	Yes
Thresholds and TCA	Supported (fixed values)

Technical Specifications

Management

CLI	Yes
In-band management (GCC1)	Yes
NETCONF/YANG	Yes
gNMI/OpenConfig	Yes
RADIUS	Yes
TACACS+	Yes
SNMP	SNMPv2c, SNMPv3
Communication	SSH, SFTP, FTP, TELNET, HTTP, HTTPS
Timing	NTP
OSMINE Support	CLEI
LLDP Snooping	Yes

Physical Characteristics

Dimensions H × W × D	1.7 × 17.2 × 23.6" (43.3 × 438.4 × 600 mm)
Weight	16.09 lbs (7.3 kg) (Blade with 5 fans)
Rack compatibility	19" 4-post racks supported rack depth 27–36" (678–923 mm)

Operating Environment

Operating Temperature	+5° C to +40° C
Operating Humidity	5–85%

Power

Power Supply	Dual Replaceable Power Modules
120 V AC (range)	90 V AC to 264 V AC
-48 V DC (range)	-40 V DC to -57 V DC
Power Consumption (Typical)	PIU × 2 (600G × 4): 2.4T: 700 W PIU × 1 (600G × 2): 1.2T: 410 W PIU × 2 (400G × 4): 1.6T: 590 W PIU × 1 (400G × 2): 800G: 360 W

Regulatory and Compliance

FCC	FCC Part 15, Class A
UL and CB Safety	UL 60950-1 and IEC 60950-1 UL 62368-1 and IEC 62368-1
RoHS	Directive 2011/65/EU
CE	CE
CISPR	CISPR 24 and 32
ETSI	EN 300–386
WEEE	WEEE
RCM	RCM
CDRH	FDA CDRH

LASER SAFETY
CLASSIFICATION & CAUTION
Compliant with IEC/EN
60825-1, -2 Laser standards

CLASS 1 CAUTION
Invisible laser radiation: Class 1 laser product
Do not view directly with optical instruments
HAZARD LEVEL 1 CAUTION
Hazard level 1 laser radiation
Do not view directly with non-attenuating optical instruments

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