

# APEX3000

## HIGH DENSITY UNIVERSAL EDGE QAM

### Product Overview

The APEX3000 is an ultra-dense, fully-redundant, state-of-the-art chassis-based edge QAM platform with excellent RF performance that is ideal for narrowcast applications such as VOD, SDV, and network DVR. The APEX3000 is also part of Motorola's distributed CCAP architecture providing an investment protection migration path to CCAP.

The APEX3000 provides 32 RF ports in a 4 RU chassis and supports up to 48 QAM channels per RF port for a maximum of 1536 QAM channels (384 QAM channels per RU). At maximum density the power draw is sub 1 Watt/QAM.

The number of QAM channels available per RF port is configurable from 16 to 48 using a pay-as-you-grow QAM upgrade model. When used in the 7+1 QAM blade redundancy mode, one QAM blade is reserved as a backup and the chassis provides 28 primary RF ports.

### Physical Chassis

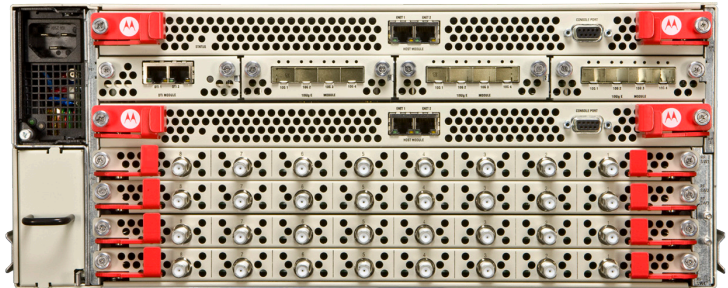
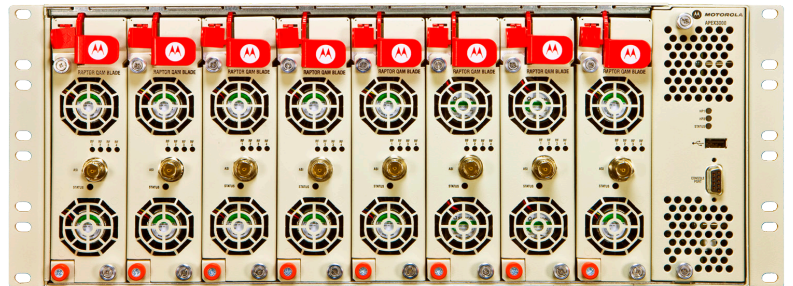
The APEX3000 is a 4 RU chassis that supports 8 QAM blades, primary and redundant host (CPU) modules, an integrated RF switch for QAM blade redundancy, twelve 10GigE interfaces (eight primary and four for GigE input redundancy), and dual redundant load-sharing power supplies available in both AC and DC models.

### Power Supplies

Support for up to two hot-swappable, load-sharing, redundant power supplies. The APEX3000 is capable of operating with either one or two power supplies installed. Both AC and DC power supplies can simultaneously be supported within the same chassis.

### QAM Modules

The APEX3000 supports up to 8 hot-swappable Raptor QAM Blades, each of which contain four RF ports. The Raptor QAM Blades are upgradable from 16 up to 48 QAM channels per RF port (increase in increments of eight QAMs on a per RF port basis).



Raptor QAM Blades are also orderable pre-configured for any 8-increment QAM channel support ranging from 16 to 48 QAMs per RF port.

### Redundancy

The APEX3000 is a fully-redundant edge QAM device capable of supporting the following redundancy features:

- 7 + 1 QAM Blade redundancy
- 1 + 1 Host Module redundancy
- 1 + 1 Power Supply redundancy
- RF output redundancy via internal RF switching
- 10GigE Interface redundancy
- 10GigE Input transport stream redundancy

### Applications

The APEX3000 platform provides support for:

- Standards based SDV
- VOD (Session-Based and CTE Encryption)
- Network DVR
- M-CMTS (future software upgrade)
- Part of Motorola's integrated CCAP solution

**General Specifications**

**MODULAR CHASSIS**

Chassis Height	4 RU
RF Ports	32
QAM Channels per RF Port	Up to 48
QAM Channels per Chassis	1536
Raptor QAM Blades	Up to eight per chassis; Increase from 16 to 48 QAMs / port in 8 QAM increments
Dimensions	26.0 in x 17.3 in x 4 RU
Weight	115 lbs

**POWER**

Power Supplies	One or two per chassis (AC or DC)
Hot Swappable	Yes
Load Sharing	Yes
AC Power Supply	180 VAC to 240 VAC
DC Power Supply	-40 VDC to -70 VDC
Power Consumption	1450W (<1 W per QAM channel fully loaded)

**INPUT DATA INTERFACES**

10GigE Physical Ports	Twelve 10GigE SFP+ interfaces
10GigE MPEG Data	Receive only
IGMPv3	Supported
Optical SFP+ Support	850, 1310, 1550 nm
SFP Support	SFP+ ports support SFP optics and SFP 1000Base-T

**RF OUTPUTS**

MER	Unequalized – typically > 45 dB Equalized – typically > 49 dB
RF Frequency Range	50MHz to 1000MHz
Maximum Allowed RF Output Power	4dB above DRFI specification*
RF Performance	Meets/Exceeds DOCSIS 3.0 DRFI Specifications
RF Connectors	F-Type, 75Ω

**REDUNDANCY**

Raptor QAM Blade	7 + 1
Host Module	1 + 1
10GigE Ports	Eight Active Ports, four Backup Ports
Power Supply	1 + 1
RF Output	Internal RF Switching

**OTHER PORTS**

Management Ports	2 RJ-45 10/100/1000 Ethernet per Host Module
ASI Monitor	1 BNC 75Ω per Raptor QAM Blade
DTI (M-CMTS)	2 RJ-45
Serial Port	1 RS-232 port per Host Module and Front Panel

**ENVIRONMENTAL**

Operating Temperature	0° C to 50° C
Storage Temperature	-40° C to +70° C
Cooling	Front to back airflow
Operating Altitude	-200 feet to 10,000 feet AMSL
Operating Humidity	5% to 95%

**APEX3000 Individual Component Part Numbers**

Component	Description	Part Number
APEX3000 Chassis**	APEX3000 base configuration	582678-001-00
Host Module	Contains host processor and 10GigE switch function	582681-001-00
Raptor QAM Blade 4x16	Four RF ports / module (up to 16 QAMs / port)	582679-001-00
Raptor QAM Blade 4x24	Four RF ports / module (up to 24 QAMs / port)	582679-002-00
Raptor QAM Blade 4x32	Four RF ports / module (up to 32 QAMs / port)	582679-003-00
Raptor QAM Blade 4x40	Four RF ports / module (up to 40 QAMs / port)	582679-004-00
Raptor QAM Blade 4x48	Four RF ports / module (up to 48 QAMs / port)	582679-005-00
Raptor QAM Fan Filler Blade	QAM Filler Blade with fan	582688-001-00
AC PS Module	AC Power Supply Module	582683-001-00
DC PS Module	DC Power Supply Module	582683-002-00
8 QAM Upgrade	Increase QAM capacity of an RF port by 8 QAMs	582690-001-00

\* All RF DRFI specifications can not be guaranteed when transmit levels are greater than 3dB above nominal DRFI specification.

\*\* Includes RF Switch Modules, DTI Interface Module, Status Module, 10GigE Interface Modules, P/S Filler Panel, and Host Filler Panel.

Note: All QAM blade slots must be filled (either Raptor QAM blade or Fan Filler Blade)

Specifications are subject to change without notice.

**To order this service, contact your sales representative.**

**476666-086-00**

**APEX Configuration Service**