PRODUCT OVERVIEW

The APEX1000 offers cost-effective and power-efficient multiplexing, encryption, and QAM/RF up conversion in a high-density platform.

High-Density EQAM for Full-Featured, Cost-Effective Video Services

The APEX1000, ARRIS’s next-generation all-purpose edge QAM, provides flexibility, high availability, high QAM density, MediaCipher encryption, and low power in an extremely cost-effective 1 RU platform. Up to three removable and hot-swappable QAM modules can be installed in the chassis. The QAM modules are available in three different hardware configurations. These are 2x4, 2x8, and 4x4. The first number indicates the number of RF ports, and the second number indicates the number of QAM channels per RF port. Any of the 48 QAM channels available can be used for Video-on-Demand (VOD), Switched Digital Video (SDV), or broadcast services.

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The APEX1000 provides four SFP slots, allowing for up to four optical or electrical GigE inputs. This also allows the APEX1000 to support full transport stream redundancy covering all 48 QAM channels. The APEX1000 supports the NGOD R6 and D6 interfaces as well as the RPC SDV interfaces, allowing it to function as an SDV edge QAM in any standards based SDV system.

In addition, the APEX1000 performs network de-jittering, MPEG multiplexing, message insertion, and PSI generation following MPEG-2 transport specifications.

**Physical Chassis**

One RU chassis with support for up to 48 DRFI-compliant QAM channels, up to three removable and hot-swappable QAM modules per chassis.

**QAM Modules**

The APEX1000 supports up to three hot-swappable QAM module variations as shown in the table below. A QAM module soft upgrade is available to field-convert a 2x4 module to a 2x8 module.

<table>
<thead>
<tr>
<th>QAM Module</th>
<th>RF Ports</th>
<th>QAM / RF</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x4</td>
<td>2</td>
<td>4 (frequency range 57 to 999 MHz)</td>
</tr>
<tr>
<td>2X8</td>
<td>2</td>
<td>8 (frequency range 57 to 999 MHz)</td>
</tr>
<tr>
<td>4X4</td>
<td>4</td>
<td>4 (frequency range 69 to 999 MHz)</td>
</tr>
</tbody>
</table>

**Power Consumption**

Extremely low power consumption (4 W/QAM channel when fully loaded, 192 W typical)

**GigE Interface**

Four GigE interfaces (SFP slots) with support for IGMPv3 and transport stream redundancy

**Power Supplies**

Supports up to two hot-swappable redundant load-sharing power supplies (system can operate with either one or two); supports two AC, two DC, or either 1 AC or 1 DC

**Encryption and Conditional Access**

- Supports full MediaCipher® encryption and conditional access as well as CTE for VOD scrambling in both MediaCipher and SCTE-52 modes
- Software upgradeable to CSA encryption
- Support for full session VOD encryption (requires Vertasent ERM/GSRM and EPG support)
**Full Video EQAM Feature Set**

- De-jittering of CBR and VBR input streams
- Receive either MPTS or SPTS
- Transmit MPTS
- Support for MPEG remultiplexing, PID remapping, PSI generation, and PSI monitoring
- Support for PSIP fixing and SCTE-18 EAS
- Supports SNMP for configuration, control, alarms, and traps

**SDV and VOD Standards**

Supports the RTSP, MHA, and RPC specifications

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### GENERAL SPECIFICATIONS

**MODULAR CHASSIS**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chassis Height</td>
<td>One RU</td>
</tr>
<tr>
<td>Dimensions</td>
<td>1.7 in x 19.0 in x 24.9 in</td>
</tr>
<tr>
<td>Weight</td>
<td>23 lb (fully loaded)</td>
</tr>
<tr>
<td>QAM Modules</td>
<td>Up to three per chassis; purchase 2x4, 2x8 or 4x4 modules; software upgrade 2x4 to 2x8</td>
</tr>
<tr>
<td>Hot-Swappable</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**RF Ports**

- 2x4, 2x8: Two per QAM module
- 4x4: Four per QAM module

**QAM Channels per RF Port**

- 2x4 module: Up to four
- 2x8 module: Up to eight
- 4x4 module: Up to four

**POWER**

- Power Supplies: Up to two per chassis
- Load Sharing: Yes
- Redundant: Yes
- Hot-Swappable: Yes
- Configurations: One or two AC
- AC Power Supply: 100 to 240 VAC, 50/60 Hz
- DC Power Supply: ~40 to ~75 VDC
- Power Consumption: <4 W/QAM channel fully loaded (192 W typical)

**ENVIRONMENTAL**

- Operating Temperature: 0 °C to 40 °C
- Storage Temperature: ~40 °C to 70 °C
- Cooling: Five fans, front-to-back airflow
- Operating Humidity: 5% to 95%

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### FEATURES

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broadcast Video</td>
<td>Supported</td>
</tr>
<tr>
<td>VOD/SDV</td>
<td>RTSP, RPC, and UDP port mapping configurable on a per-QAM–channel basis</td>
</tr>
<tr>
<td>M-CMTS</td>
<td>DEPI and DTI</td>
</tr>
<tr>
<td>Encryption and CA</td>
<td>MediaCipher and SCTE-52, Broadcast and CTE (for VOD); upgradable CSA and AES Full session VOD encryption</td>
</tr>
<tr>
<td>Configuration/Control</td>
<td>Element Manager (SNMP),ARRIS SDM (SNMP), console port (RS-232)</td>
</tr>
</tbody>
</table>

### GIGABIT ETHERNET INPUT/OUTPUT

- GigE MPEG Data: Receive only
- Physical Ports: Four SFP slots
- IGMPv3: Supported
- Optical SFP Support: 850, 1310, 15xx nm
- Electrical SFP Support: 1000Base-T

### FAST ETHERNET INPUT/OUTPUT

- Physical Ports: Two RJ-45 Ethernet

### RF OUTPUT

- ITU J.83 Annex A, B, C, DRFI
- QAM Constellations: 256 QAM and 64 QAM
- Center Frequency Range: 57 to 999 MHz (2x4 and 2x8 modules) 69 to 999 MHz (4x4 module)
- Carrier Frequency Step Size: 250 KHz
- RF Level Step Size: 0.2 dB
- Maximum RF Output Level (software version 2.1.0 or higher)
  - One active channel: 62 dBmV
  - Two active channels: 58 dBmV
  - Four active channels: 54 dBmV
  - Six active channels: 52 dBmV
  - Eight active channels: 51 dBmV
- Input Impedance: 75 Ω

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## INDIVIDUAL COMPONENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>APEX1000 Chassis</td>
<td>QAM modules and power supply modules sold separately</td>
<td>540274-003-00</td>
</tr>
<tr>
<td>QAM Module (2x4)</td>
<td>Two RF ports per module enable up to four QAMs per port</td>
<td>540273-001-00</td>
</tr>
<tr>
<td>QAM Module (2x8)</td>
<td>Two RF ports per module enable up to eight QAMs per port</td>
<td>540273-002-00</td>
</tr>
<tr>
<td>QAM Module (4x4)</td>
<td>Four RF ports per module enable up to four QAMs per port</td>
<td>540273-005-00</td>
</tr>
<tr>
<td>Power Supply Module (AC)</td>
<td>AC power supply</td>
<td>540272-001-00</td>
</tr>
<tr>
<td>Power Supply Module (DC)</td>
<td>DC power supply</td>
<td>540272-002-00</td>
</tr>
</tbody>
</table>

### Set Configurations

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>APEX1000 V48 AC configuration</td>
<td>Includes APEX1000 V48 AC along with the Broadcast support license</td>
<td>541928-005-00</td>
</tr>
<tr>
<td>APEX1000 V48 DC configuration</td>
<td>Includes APEX1000 V48 DC along with the Broadcast support license</td>
<td>541928-006-00</td>
</tr>
<tr>
<td>APEX1000 V24 AC configuration</td>
<td>Includes APEX1000 V24 AC along with the Broadcast support license</td>
<td>541928-007-00</td>
</tr>
<tr>
<td>APEX1000 V24 DC configuration</td>
<td>Includes APEX1000 V24 DC along with the Broadcast support license</td>
<td>541928-008-00</td>
</tr>
</tbody>
</table>

### QAM Upgrade

<table>
<thead>
<tr>
<th>Upgrade</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>QAM Module Upgrade</td>
<td>Field-convert a 2x4 QAM module to a 2x8 QAM module</td>
<td>540400-001-00</td>
</tr>
</tbody>
</table>

To order this service, contact your sales representative.

476666-086-00

APEX Configuration Service

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