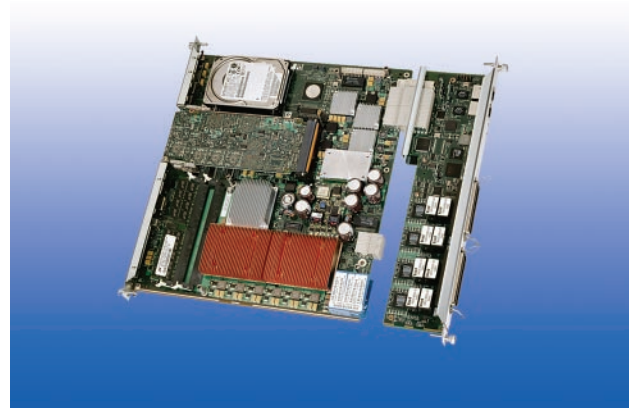


# Dialogic® Multimedia Platform for AdvancedTCA

Datasheet  
Multimedia Platform

Dialogic® Multimedia Platform for AdvancedTCA (MMP for ATCA) is a powerful and cost-effective product that can be used to deliver applications such as voice and video mail, video portal, Color Ring Back Tones (CRBT), multimedia conferencing, and unified messaging over IP and PSTN interfaces in wireline and wireless environments using standard protocols for session and media control.



## Features

**Supports multimedia processing with advanced video features such as transcoding and image adjustment**

**Supports video, voice, transcoding, conferencing, and fax on the same hardware**

**Supports a variety of low-bit-rate and wireless audio and video coders**

**Supports IP and PSTN interfaces**

**Supports 3G-324M interface**

**Supports a widely accepted MSML remote media control interface along with customer-provided interfaces**

**Uses an open architecture with Intel Architecture 32-bit (IA-32) "local host" and hard drive**

**Implemented in the industry-standard carrier-grade AdvancedTCA form factor**

**Available with factory-installed and configured operating system and runtime software**

## Benefits

Enables customers to build next-generation multimedia solutions such as video CRBT, video portals, multimedia conferencing, and video-enabled call centers

Reduces solution footprint and lowers inventory and upgrade costs

Can be deployed in wireline and wireless networks

Can optimize migration from PSTN to IP

Can be deployed in 3G wireless networks

Speeds time-to-market and lowers development costs for IMS deployments

Reduces costs by enabling customers to put their entire solution (including an application) on a single blade

Lowers development and operational costs and reduces time-to-market

Accelerates development and deployment of customer solutions

## Applications

- Voice and video mail
- Video portal
- Voice and video CRBT
- Video-enabled call center
- Video and audio conferencing
- Unified messaging
- Prepaid calling for voice and video

MMP for ATCA is designed to meet the needs of Telecom Equipment Manufacturers (TEMs) and other vendors who are building next-generation multimedia processing solutions, especially in the IP Multimedia Subsystem (IMS) framework, while enabling migration from solutions deployed in existing TDM networks. MMP for ATCA provides a comprehensive set of building blocks that developers need to create multimedia server and gateway solutions. Its flexibility allows a choice between running customer-provided software from a local hard drive or standard remote interfaces for media control, configuration, and management provided by Dialogic.

MMP for ATCA includes hardware and runtime software. In order to enable customers to optimize their spending, various multimedia software runtime licenses are available.

MMP for ATCA is also available with an operating system (Red Hat Enterprise Linux) and runtime software pre-installed and pre-configured. This option enables customers to reduce the time required to develop and deploy their solutions.

## MMP for ATCA Block Diagram

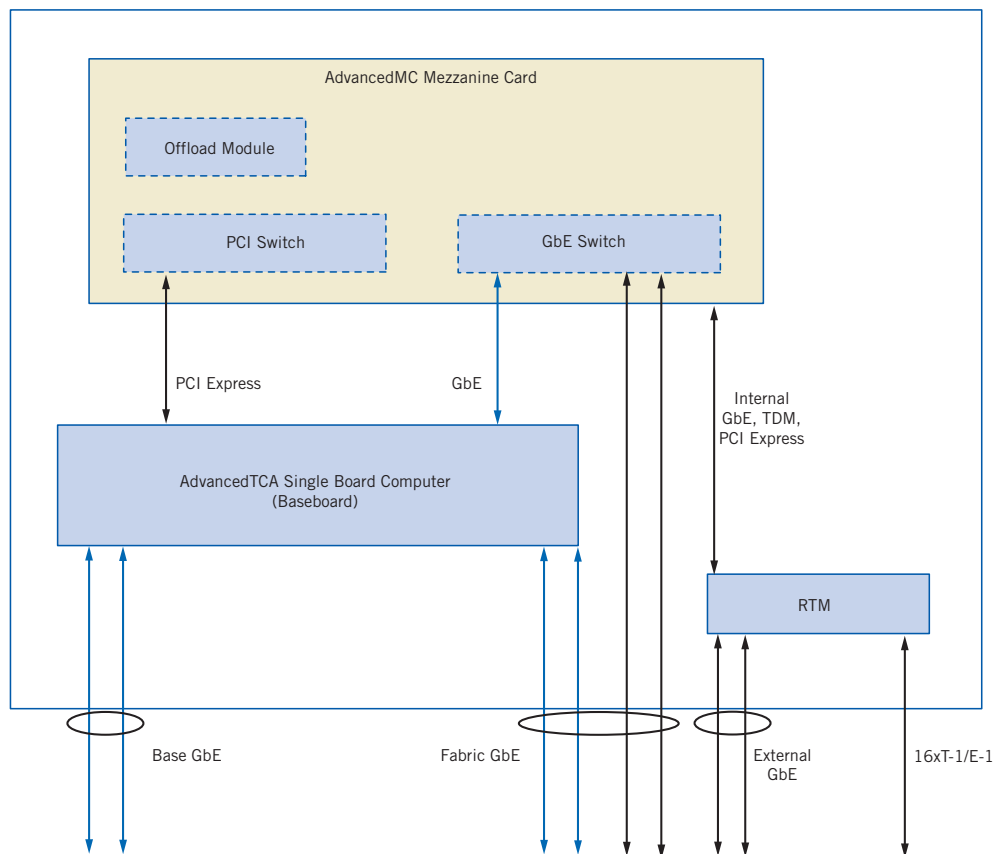


Figure 1. MMP for ATCA Block Diagram

The baseboard for MMP for ATCA is an AdvancedTCA single board computer that includes two Dual-Core Intel Xeon LV 2.0 GHz processors featuring multi-core technology designed to boost multitasking computing power. The baseboard also includes 2 GB of RAM and a hard drive.

Most media processing tasks on MMP for ATCA are performed by media processing software based on Dialogic® Host Media Processing Software. The software runs on the baseboard to provide advanced media processing features including video support.

The AdvancedMC mezzanine card is used for echo cancellation and transcoding offload, which significantly enhances media processing performance, especially when low-bit-rate audio coders are required at high-density levels. Because MMP for ATCA's multimedia software and Dialogic HMP Software support the same APIs, the HMP Software can be used on any off-the-shelf computer for deploying lower density applications or for development tasks to reduce costs. New applications developed with MMP for ATCA's software will be compatible with applications developed with Dialogic HMP Software, promoting application portability.

Another major advantage of MMP for ATCA is its open architecture with a "local host" that customers can use to install and run their applications or middleware. This enables developers to use the application deployment models and media control protocols of their choice.

MMP for ATCA supports Media Server Markup Language (MSML), a popular remote media control interface that a number of media server and application server vendors also support. MSML enables developers to rapidly create new services running on remote application servers in a distributed environment.

A TDM interface is supported via the optional Rear Transition Module (RTM). The RTM provides 16 spans of T1/E1 (Clear Channel only) as well as two Gigabit Ethernet interfaces.

For IP connectivity, customers can choose one of the following:

- AdvancedTCA base interface for signaling and file I/O with a fabric interface for media streaming. Alternatively, the fabric interface can be used for all Ethernet traffic (signaling, media, and file I/O).
- Gigabit Ethernet interface on the RTM, which connects MMP for ATCA directly to an Ethernet switch outside the AdvancedTCA chassis.

To enable developers to build carrier-grade highly available solutions, MMP for ATCA has been tested for NEBS level 3 compliance and supports the following features:

- Hot swap
- Dual Gigabit Ethernet interfaces for base, fabric, and RTM connections
- Comprehensive remote management capabilities via SNMP v2.0 and command line interface

## Solution Configuration Examples

Figure 2 illustrates a solution based on MMP for ATCA.

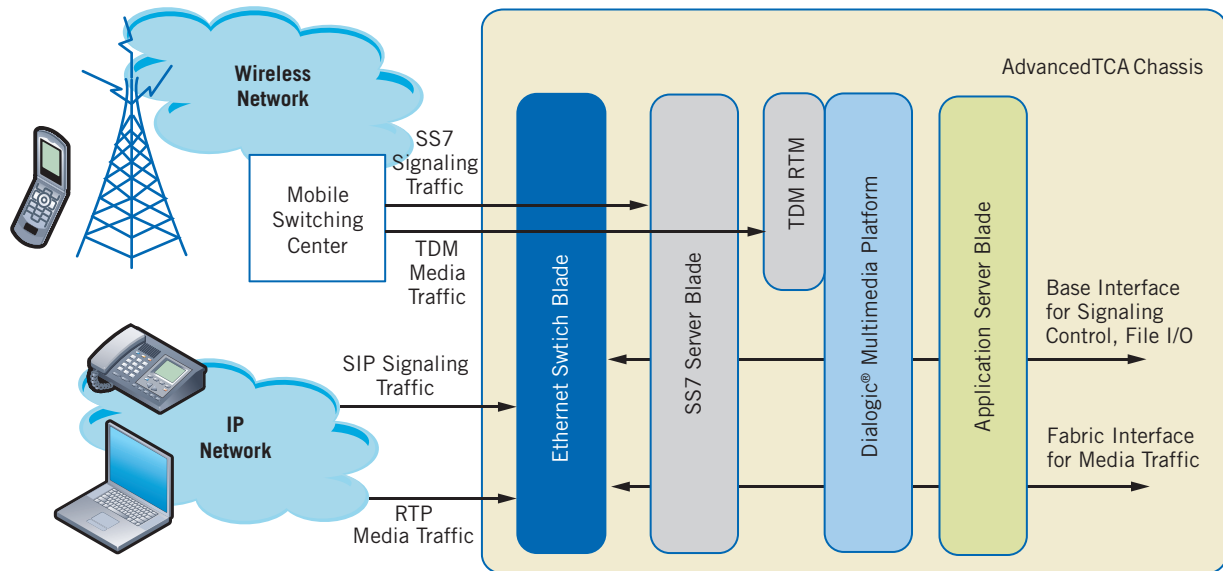


Figure 2. Solution Based on MMP for ATCA

The configuration shown in Figure 2 can be used as a multimedia processing server or gateway for such applications as voice and video mail, CRBT, multimedia conferencing, prepaid calling, or network call center connected to both TDM and IP networks.

Both signaling and media IP traffic are terminated on an Ethernet switch blade (available from third parties), which distributes signaling and control traffic over the AdvancedTCA base interface and media traffic over the fabric interface inside the chassis.

MMP for ATCA is connected to both TDM and IP networks. For IP connectivity, it utilizes the base interface for signaling and the fabric interface for RTP media traffic. Alternatively, the fabric interface can be used for all types of traffic over Ethernet. TDM media traffic terminates on the RTM, which then routes the TDM traffic to the baseboard for processing. TDM signaling traffic (SS7) is terminated on an SS7 signaling server blade that can be implemented using SS7 software products available from Dialogic. Depending on the solution scale and resources required by the application, the SS7 signaling server and application server functions can be combined on the same blade. For more information about SS7 software products, visit [http://www.dialogic.com/products/signalingip\\_ss7components/signaling\\_software.htm](http://www.dialogic.com/products/signalingip_ss7components/signaling_software.htm).

Figure 3 shows how video solutions built with MMP for ATCA and SS7 products can be deployed in 3G wireless networks. The figure illustrates communication between the Mobile Switching Center/Visitor Location Register (MSC/VLR), Home Location Register (HLR), and Gateway Mobile Switching Center (GMSC) and includes the position of the Bearer-Independent (BICC) protocol and Mobile Application Part (MAP) traffic.

Video solutions such as those illustrated in Figure 3 can be built for:

- **3G Release 99 networks** — Uses MMP for ATCA with a TDM (E1) interface, together with Dialogic® SS7 TDM products
- **3G Release 4 networks** — Uses MMP for ATCA with an IP interface and Dialogic® Protocol Software (BICC, SIGTRAN). This solution can be deployed on a single MMP for ATCA unit with the potential benefit of reducing solution footprint and costs.

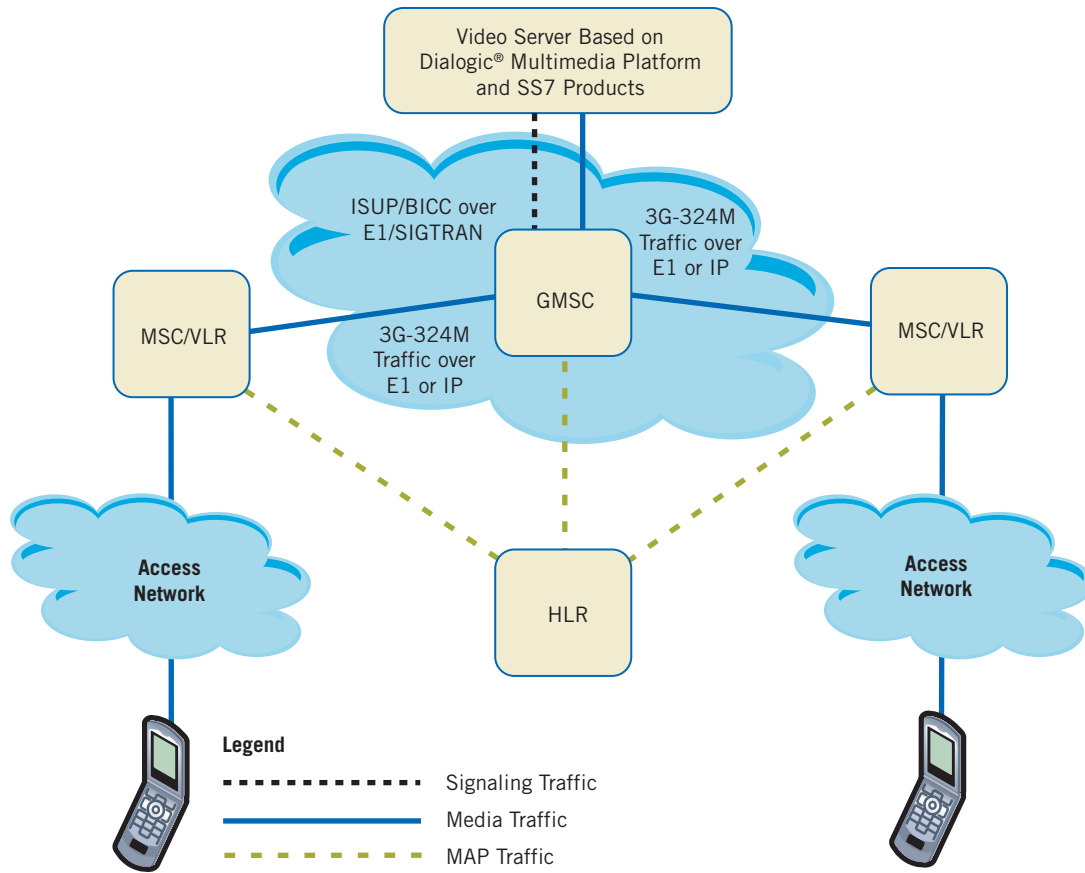


Figure 3. Video Solution with MMP for ATCA and Dialogic® SS7 Products

Applications can be deployed on a separate application server blade, based on an AdvancedTCA single board computer available from other vendors. In this model, the application server controls the MMP for ATCA remotely over the base Ethernet interface. Developers have a choice of using the remote media control interface (MSML) available with MMP for ATCA or using their own middleware to implement the remote control interface of their choice (for example, H.248 for IMS solutions). Such a distributed model is widely deployed in next-generation solutions.

An alternative is deploying an application on MMP for ATCA and using a local C API to control its operation. In this case, a separate application server blade is not required. Such a model is more common in traditional solutions.

MMP for ATCA gives developers a choice among IP and TDM interfaces and remote or local application deployment, which simplifies migration from TDM to IP and from traditional to next-generation applications.

MMP for ATCA provides features required to implement a High Availability (HA) environment: hot swap, NEBS compliance, and remote management via SNMP or command line interface as well as OpenIPMI support. Some additional components such as redundant blades, SIP proxy servers, and other elements that may be required for HA have been omitted from Figures 2 and 3 because they are specific to individual implementations.

## Technical Specifications

### Operation

Number of ports	Up to 500 voice with G.711 (densities for video and other voice coders are lower)
Form factor	AdvancedTCA with AdvancedMC and RTM
Media processing	Voice, T.38 fax, audio conferencing, audio transcoding, video play/record, video transcoding, and video conferencing
Video processing	Play, record, I-Frame update (Video Fast Update or VFU), image adjustment (rescale and reframe), transcoding, text/image overlay, play still image, capture still image, DVR controls: pause, resume and seek during audio and video playback
Video image formats	Common Intermediate Format (CIF) PAL at 352 by 288 pixels, Quarter Common Intermediate Format (QCIF) PAL at 176 by 144 pixels, and Sub-QCIF PAL at 128 by 96 pixels
Video frame rates	30, 15, 10, or 6 frames per second
Voice processing	Play, record, tone generation and detection: DTMF (inband and RFC2833), call progress analysis tones, and custom tones
Audio conferencing	Active talker detection, n-way summing (configurable 1 to 6 speakers), DTMF clamping, coach-pupil mode, per party volume control
Play/record coders	Video: H.263 Profile 0 Level 10, 20; MPEG4 Simple Profile Level 0, 1, 2, 3 Audio: OKI ADPCM (24K, 32K); G.711 A-law, $\mu$ -law 48K, 64K; Linear PCM 8b 8K
Network coders	Video: H.263 Profile 0 Level 10 (for 3G-324M only), 20; MPEG4 Simple Profile Level 0 (for 3G-324M only), 1, 2, 3, 4 and Advanced Simple Profile Level 0, 1, 2, 3, 4, 5 Audio: G.711 (10 ms, 20 ms, 30 ms frames) G.723, G.726, G.729a/b, AMR-NB <sup>1</sup> , EVRC <sup>1</sup> , GSM-EFR, QCELP <b><sup>1</sup>Note:</b> Using the AMR-NB and EVRC resources in Dialogic MMP does not grant the right to practice the AMR-NB and EVRC standards. To seek a patent license agreement to practice the standards, contact VoiceAge Corporation at <a href="mailto:licensing@voiceage.com">licensing@voiceage.com</a>
Echo cancellation	G.168-2004, echo tail up to 128 ms
File I/O	Remote (NFS) Local storage (up to 70 GB)
Application model	Local and remote
Local APIs	Dialogic® R4 and Dialogic® Global Call APIs with video extensions
Remote media control interface	Media Server Markup Language (MSML)
Manageability	Full remote capability via Command Line Interface (CLI) and SNMP v2 and v3. Supports IPMI v2.0

### Connectivity

Network interfaces	IP TDM
TDM connectivity	16 T1/E1 (up to 496 timeslots) via optional RTM (2 RJ-21 connectors)
Signaling	TDM: Clear Channel (requires a separate SS7 signaling module) IP: SIP-based connection control
IP media	RTP, RTCP, with jitter control and packet loss reduction

## Technical Specifications *(continued)*

Video protocols	3G-324M over TDM (E1) or IP (NbUP) <b>Note:</b> Requires Dialogic® Multimedia Software for AdvancedTCA Release 1.1 or higher
Ethernet connectivity	Gigabit Ethernet Base (signaling, file I/O) Fabric (RTP media streaming) RTM (signaling, media streaming, signaling, file I/O)
Ethernet redundancy	Dual port for each connection
<b>Operating system</b>	
Linux	Red Hat Linux Enterprise 4 (customer-provided or pre-installed by Dialogic)
<b>Power</b>	
Supported voltage (normal)	-38 VDC to -72 VDC
Maximum power draw	Baseboard and AdvancedMC: 175 W RTM: 12 W
<b>Environmental</b>	
Ambient Temperature	Operating (normal): 5°C to 40°C (board intake) Operating (short term): -5°C to 55°C Storage: -40°C to 70°C
Airflow	Operating: 30 CFM per minute minimum
Humidity	Operating: 15% to 90% non-condensing at 55°C Storage: 5% to 95% non-condensing at 40°C
Vibration	Operating: 5 to 100 Hz: 1G @ 0.25 octave/minute; 100 to 500 Hz: 1G @ 1 octave/minute
Shock (unpackaged)	Operating: 30 G, 11 ms half sine Non-operating: 50 G, 170 inches/second trapezoidal
<b>Connections</b>	
Front Panel I/O	One USB 2.0 port One serial port (RJ-45) One x4 SAS connector with support for 2 SAS ports Two 10/100/1000 Ethernet ports LEDs for hot swap, out of service, health, hard drive activity, and Ethernet ports
Backplane	Dual Gigabit Ethernet (AdvancedTCA Base Interface) Quad Gigabit Ethernet (AdvancedTCA Fabric Interface; PICMG 3.1, option 2) Dual IPMB connections (Zone 1) Support for Rear Transition Module (Zone 3)
Rear Transition Module Ports	16 E1/T1 ports (2 RJ-21 connectors, 8 spans each) Two Gigabit Ethernet ports

## Technical Specifications *(continued)*

### Storage

Hard drive capacity	37 GB SAS
DRAM capacity	2 GB SDRAM

### Physical

Height	8U, 14 in. (35.56 cm)
Width	1.2 in. (3.048 cm)
Depth	11.02 in. (28 cm)
Weight (main board)	7.76 lbs. (3.52 kg) — without packaging 9.58 lbs. (4.3 kg) — with packaging
Weight (RTM)	1.79 lbs. (0.8 kg) — without packaging 3.5 lbs. (1.5 kg) — with packaging

### Specification Compliance

AdvancedTCA	AdvancedTCA 3.0 R1.0 and ECN001
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### Regulatory Compliance

Electromagnetic compatibility for telecom network equipment	EN 300 386 V1.3.1 (2001-09)
Emissions	CISPR22:1997 & 2003/EN55022:1998 & EN55022 A1:2000 & A2:2003 Class A EN 300 386 V1.3.2:2003
EMC (additional standard)	FCC 47 CFR Ch1, part 15, ES201 468:03.00
Safety	EN60950:2000, UL 60950:2000
Climate	EN 300 019-2-2, 09/1999/T2.3 EN 300 019-2-3, 09/1999/T3.1E
Earthquake zone	EN 300 019-2-3, 09/1999/T3.1-T3.5
Transportation	EN 300 019-2-2, 09/1999/T2.3
NEBS compliance	Ready for NEBS Level 3 system certification when packaged or installed: <ul style="list-style-type: none"><li>• All materials UL 94V-1 or better fire resistant</li><li>• Tolerates airborne contaminants</li><li>• Meets shock and vibration requirements</li></ul>
Hazardous substances	RoHS Compliance Information at <a href="http://www.dialogic.com/rohs">http://www.dialogic.com/rohs</a>
Warranty	See warranty information at <a href="http://www.dialogic.com/warranties">http://www.dialogic.com/warranties</a>

## Ordering Information

MMP for ATCA supports a variety of hardware and media software configurations in order to provide customers with flexibility in choosing solution configurations. The available hardware and software configurations are listed in the tables below.

Product Code	Order Code	Hardware Configuration	Description
MMB250BA01AQ	886-729	250-port multimedia blade (without software installed)	250 IP ports multimedia (audio and video) processing capability
MMP250RE01AQ	306-331	250-port multimedia blade with Red Hat Enterprise Linux ES (one-year subscription) and multimedia runtime software pre-installed	250 IP ports multimedia with OS and runtime software
MMB500BA01AQ	886-728	500-port multimedia blade (without software installed)	500 IP ports voice or 250 ports multimedia processing capability
MMP500RE01AQ	306-330	500-port multimedia blade with Red Hat Enterprise Linux ES (one-year subscription) and multimedia runtime software pre-installed	500 IP ports voice or 250 ports multimedia with OS and runtime software
MMBRTM496TE01AQ	886-851	IP+TDM RTM	RTM for connecting to PSTN (16 T1/E1) plus an external Ethernet switch
MMBRTMIP01AQ	886-870	IP-only RTM	RTM for connecting to an external Ethernet switch

Table 1. Hardware Configurations

Product Code	Order Code	Software Configuration	Description	Matching Hardware Configuration
<b>Dialogic® Multimedia Software for AdvancedTCA Releases 1.0 and 2.0</b>				
MMSL250VB10	887-769	250 ports multimedia	Multimedia processing: 250 ports voice, 250 voice conferencing, 250 RTP, 20 fax, 250 basic video	MMB250BA01AQ, MMB500BA01AQ
MMSL500EV10	G01-004	500 ports audio (TDM only)	Audio processing: 500 ports voice, 20 ports fax, 200 ports conferencing	MMB500BA01AQ
MMSL500V10	887-771	500 ports audio	Audio processing: 500 ports voice, 320 voice conferencing, 500 RTP, 40 fax	MMB500BA01AQ
MMSL500VB10	888-786	500 ports multimedia	Multimedia processing: 500 ports voice, 250 basic video, 320 voice conferencing, 40 fax	MMB500BA01AQ
<b>Dialogic® Multimedia Software for AdvancedTCA Release 2.0</b>				
MMSL60HA20	G03-028	60 ports advanced video over IP and 3G-324M interfaces	Multimedia processing: 60 3G-324M termination, 60 advanced video, 60 voice, 60 RTP	MMB250BA01AQ, MMB500BA01AQ
MMSL60HAC20	G04-028	60 ports advanced video with video conferencing over IP and 3G-324M interfaces	Multimedia processing: 60 3G-324M termination, 60 advanced video, 30 video conferencing, 60 voice, 60 RTP	MMB250BA01AQ, MMB500BA01AQ
MMSL60AC20	G05-028	60 ports advanced video with video conferencing over IP	Multimedia processing: 60 advanced video, 30 video conferencing, 60 voice, 60 RTP	MMB250BA01AQ, MMB500BA01AQ
MMSL180BA20	G02-028	180 ports video including 20 ports advanced video over IP and 3G-324M interfaces	Multimedia processing: 180 basic video, 180 3G-324M termination, 20 advanced video, 180 voice, 180 RTP	MMB250BA01AQ, MMB500BA01AQ
MMSL250HB20	G01-028	250 ports multimedia with IP and 3G-324M interfaces	Multimedia processing: 250 ports basic video and voice, 250 3G-324M termination, 250 IP termination	MMB250BA01AQ, MMB500BA01AQ
MMSL500MV20	G08-028	500 ports audio (G.711 only)	Audio processing: 500 ports voice, 500 ports RTP G.711	MMB500BA01AQ

Table 2. Software Configurations with Matching Hardware Configurations

**Note:** The advanced video ports listed in Table 2 include the following functions: multimedia play/record, digit detection, half-duplex video transcoding, image adjustment, I-frame update, and text/image overlay.

## Additional Components

In order to connect the RTM to T1/E1 lines, Dialogic provides a breakout box kit, which can support up to 32 RJ-45 jacks (Product Code: BOB32T1E1W, Order Code: 882-755).

Each breakout box kit can support two MMPs for ATCA. The kit also includes four cables and the hardware to rack mount the breakout box. Alternatively, customers can use their own breakout boxes.

[www.dialogic.com](http://www.dialogic.com)

**Dialogic Corporation**

9800 Cavendish Blvd., 5th floor  
Montreal, Quebec  
CANADA H4M 2V9

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