SURFBOARD® SB6141
CABLE MODEM

Strengthen your broadband leadership — Count on Motorola’s SURFboard DOCSIS® / EuroDOCSIS 3.0 CPE to help you deliver innovative, ultra-broadband data services to your premium customers.

High Value and Increased Data Rates
Motorola’s easy-to-use SB6141 SURFboard DOCSIS 3.0 Cable Modem unlocks the potential of offering innovative high-bandwidth data and multimedia services to customers.

Utilizing the power of DOCSIS 3.0, the SB6141 enables channel bonding of up to eight downstream channels and four upstream channels, which allows an operator to offer its customers advanced multimedia services with data rates of over 300 Mbps for received data and over 100 Mbps when sending data. The SB6141’s higher-speed services enable operators to:
- Protect their installed base of high-speed data customers
- Deliver high-bandwidth, multimedia services
- Deliver competitive, high-capacity commercial services to their business customers

Economic and Flexible
The Motorola SB6141 SURFboard DOCSIS 3.0 Cable Modem provides operators with an economic option for providing Ultra-Broadband services, with eight times the current maximum user data throughput approximating over 300 Mbps in DOCSIS and 400 Mbps in EuroDOCSIS mode*, without the need for hybrid fiber coax (HFC) plant upgrade. Maximizing an operator’s current infrastructure investment, the SB6141 can be deployed without service interruption. Backwards-compatible to DOCSIS 1.0, 1.1 and 2.0, the SB6141 also supports both IPv4 and IPv6, Advanced Encryption Services, and all other DOCSIS 3.0 standards.

As part of Motorola DOCSIS 3.0 Ultra-Broadband family of products, the SB6141 tuner has flexibility of two individual capture bandwidth groups, each 96 MHZ.

These downstream capture windows can be placed independently anywhere within the 108 MHz to 1 GHz spectrum for deployment of new high-value services, such as bandwidth on-demand, commercial services, interactive gaming, and IPTV, to their customers.

The SB6141 features a 10/100/1000Base-T Ethernet (RJ-45) port, as well as intuitive, easy-to-read front-panel operational status LEDs. Operators can optionally activate dual-colored LEDs for their customer to have visual verification of bonded channels and GigE link use.

With Motorola’s cable modems, high-speed Internet access is always at your fingertips – always on and always connected. The SB6141 is the ideal competitive solution for the high-end residential user, the small home office owner, and the medium to large business enterprise.

Highlights
Compatible with Windows®, Macintosh®, and UNIX® computers
DOCSIS 3.0
Compatible, featuring:
- Channel bonding of up to eight downstream channels and four upstream channels increasing data rates of over 300 Mbps for received data and over 100 Mbps when sending data
- Supports IPv4 and IPv6 to expand network addressing capabilities
- Enhanced security: supports AES traffic encryption
- Enhanced network management
- Ability to provision and manage IP multicast
- GigE (RJ-45) data port with Auto Negotiate and Auto MDIX
- User-friendly online diagnostics
Motorola’s Service-Assured DOCSIS® 3.0 Solutions enable you to deliver increased bandwidth, enhance security, and cost-effectively deploy data services to your bandwidth-demanding consumers—all while maximizing current infrastructure investment and lowering capital expenditures.

**General Specifications**

- **Cable Interface**: 75 Ω F-connector
- **CPE Network Interface**: 10/100/1000Base-T Ethernet (RJ-45)
- **Data Protocol**: TCP/IP
- **Dimensions**: 5.24 in H x 5.24 in W x 1.65 in D (133 mm x 133 mm x 42 mm)
- **Power**: 9W (nominal)
- **Input Power**
  - North America: 105 to 125 VAC, 60 Hz
  - Outside North America: 100 to 240 VAC, 50 to 60 Hz

**Environmental**

- **Operating Temperature**: 32°F to 104°F (0°C to 40°C)
- **Storage Temperature**: –22°F to 158°F (-30°C to 70°C)
- **Operating Humidity**: 5 to 95% R.H. (non-condensing)

**Downstream**

- **Modulation**: 64 or 256 QAM
- **Capture Bandwidth**: Dual 96 MHz Capture windows
- **Maximum Theoretical Data Rate**
  - **DOCSIS**: 343.072 Mbps (8 channels) / 42.884 (single channel)
    @ 256 QAM at 5.36 Msym/s
  - **EuroDOCSIS**: 444.928 Mbps (8 channels) / 55.616 (single channel)
    @ 256 QAM at 6.952 Msym/s
- **Bandwidth**
  - **DOCSIS**: ≤ 48 MHz
  - **EuroDOCSIS**: ≤ 64 MHz
- **Symbol Rate**
  - **DOCSIS**: 64 QAM 5.057 Msym/s; 256 QAM 5.361 Msym/s
  - **EuroDOCSIS**: 64 QAM 6.952 Msym/s; 256 QAM 6.952 Msym/s
- **Operating Level Range**: –15 to 15 dBmV
- **Bonded Channel RF**
  - **Level Tolerance**: 10dBmV
  - **Input Impedance**: 75 Ω (nominal)
- **Frequency Range**: DOCSIS and EuroDOCSIS 108 to 1002 MHz (edge to edge)
- **Frequency Plan**
  - EuroDOCSIS: Annex A
  - DOCSIS: Annex B
  - J-DOCSIS: Annex B, modified for Japan Frequencies
- **Security**: DOCSIS 3.0 Security (BPI+, EAE, SSD)
- **Network Management**: SNMP v2 & v3
- **Provisioning**: Supports IP addressing using IPv4 and/or IPv6 (dual stack)
- **MoCA Interference Rejection**: 1 GHz Low Pass filter at tuners input

**Highlights (continued)**

- Optional Mid-Split support for cable plants that can utilize the advantages of a 5-85 MHz upstream spectrum
- The SB6141 includes an internal filter to eliminate potential interference from MoCA signals’ intermodulation beats
- Optional USB Device Port available

**Benefits**

Easily add the SB6141 to a deployed family of SB6120s and SB6121s, all three models utilize the same firmware image. This reduces qualification time for an Operator and eliminates configuration management headaches.
Upstream

<table>
<thead>
<tr>
<th>Modulation</th>
<th>QPSK and 8, 16, 32, 64, 128 QAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Channel Rate**</td>
<td>DOCSIS 131.072 Mbps (4 channels) / 32.768 Mbps (single channel):</td>
</tr>
<tr>
<td></td>
<td>@ 128 QAM at 6.4 MHz</td>
</tr>
<tr>
<td></td>
<td>EuroDOCSIS 131.072 Mbps (4 channels) / 32.768 Mbps (single channel):</td>
</tr>
<tr>
<td></td>
<td>@ 128 QAM at 6.4 MHz</td>
</tr>
<tr>
<td>Channel Width</td>
<td>200 kHz, 400 kHz, 800 kHz, 1.6 MHz, 3.2 MHz, 6.4 MHz</td>
</tr>
<tr>
<td>Symbol Rates</td>
<td>160, 320, 640, 1280, 2560, 5120 ksym/s</td>
</tr>
<tr>
<td>Operating Level Range</td>
<td>Level range per channel (Multiple Transmit Channel mode disabled, or only Multiple Transmit Channel mode enabled with one channel in the TCS)</td>
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</tbody>
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**Actual data throughput will be less due to physical layer overhead (error correction coding, burst preamble, and guard interval). Certain features may not be activated by your service provider, and/or their network settings may limit the feature’s functionality. Additionally, certain features may require a subscription. Contact your service provider for details. All features, functionality, and other product specifications are subject to change without notice or obligation. DOCSIS 3.0 modem capabilities are dependant on the services available through the CMTS. Please verify with your CMTS vendor their specific DOCSIS 3.0 implementation roadmap.