

# SURFBOARD® SB6121 CABLE MODEM

Count on the ARRIS SURFboard SB6121 DOCSIS® 3.0 Cable Modem to deliver innovative, ultra-broadband data service.

## High Value and Increased Data Rates

The easy-to-use SB6121 SURFboard DOCSIS 3.0 Cable Modem unlocks innovative high-bandwidth data and multimedia services.

Utilizing the power of DOCSIS 3.0, the SB6121 enables channel bonding of up to four downstream channels and four upstream channels, which provides download speeds up to 172 Mbps. The SB6121's higher-speeds enable high-bandwidth, multimedia services.

## Economic and Flexible

The SB6121 SURFboard DOCSIS 3.0 Cable Modem provides an economic option for Ultra-Broadband services, with four times the current maximum user data throughput approximating 172 Mbps.

Backwards compatible to DOCSIS 1.0, 1.1 and 2.0, the SB6121 also supports both IPv4 and IPv6, Advanced Encryption Services, and all other DOCSIS 3.0 standards.

As part of ARRIS DOCSIS 3.0 family of products, the SB6121 includes an enhanced tuner that supports up to a 1 GHz downstream input, which allows for high-value services, such as, interactive gaming, and HD video streaming.

The SB6121 features a 10/100/1000Base-T Ethernet (RJ-45) port, as well as intuitive, easy-to-read front-panel operational status LEDs.



With SURFboard cable modems, high-speed Internet access is always at your fingertips – always on and always connected. The SB6121 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 Certified, featuring:

- Channel bonding of up to four downstream channels and four upstream channels increasing data rates to well over 100 Mbps in each direction
- 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

Power saving Energy Conservation Switch allows user to disable the modem when not in use (optional feature)

Internal Low Pass Filter to eliminate MoCA signal overload

### 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
Regulatory	RoHS compliant, COC V3, Compliant per the "Code of Conduct on Energy Consumption of Broadband Equipment", CMM, MEPS

### 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	100 MHz (edge to edge)
Maximum Theoretical Data Rate*	
DOCSIS	171.537 Mbps (4 channels) / 42.884 (single channel) @ 256 QAM at 5.36 Msym/s
Bandwidth	
DOCSIS	≤ 24 MHz
Symbol Rate	
DOCSIS	64 QAM 5.057 Msym/s; 256 QAM 5.361 Msym/s
Operating Level Range	-15 to 15 dBmV
Bonded Channel RF	
Level Tolerance	10dBmV
Input Impedance	75 Ω (nominal)
Frequency Range	DOCSIS 108 to 1002 MHz (edge to edge), Optional 91 to 1002 MHz (edge to edge)
Frequency Plan	
DOCSIS	Annex B
Security	DOCSIS 3.0 Security (BPI+, EAE, SSD)
Network Management	SNMP v2 & v3
Provisioning	Supports IP addressing using IPv4 and/or IPv6 (dual stack)

### Upstream

Modulation	QPSK and 8, 16, 32, 64, 128 QAM
Maximum Channel Rate*	
DOCSIS	131.072 Mbps (4 channels) / 32.768 Mbps (single channel): @ 128 QAM at 6.4 MHz
Channel Width	200 kHz, 400 kHz, 800 kHz, 1.6 MHz, 3.2 MHz, 6.4 MHz
Symbol Rates	160, 320, 640, 1280, 2560, 5120 ksym/s
Operating Level Range	Level range per channel (Multiple Transmit Channel mode disabled, or only Multiple Transmit Channel mode enabled with one channel in the TCS)
DOCSIS	
TDMA	Pmin to +57 dBmV (32 QAM, 64 QAM) Pmin to +58 dBmV (8 QAM, 16 QAM) Pmin to +61 dBmV (QPSK)
S-CDMA	Pmin to +56 dBmV (all modulations), where: Pmin = +17 dBmV, 1280 kHz modulation rate Pmin = +20 dBmV, 2560 kHz modulation rate Pmin = +23 dBmV, 5120 kHz modulation rate

**Upstream (continued)**

Level range per channel (two channels in the TCS)	
TDMA	Pmin to +54 dBmV (32 QAM, 64 QAM) Pmin to +55 dBmV (8 QAM, 16 QAM) Pmin to +58 dBmV (QPSK)
S-CDMA	Pmin to +53 dBmV (all modulations), where: Pmin = +17 dBmV, 1280 kHz modulation rate Pmin = +20 dBmV, 2560 kHz modulation rate Pmin = +23 dBmV, 5120 kHz modulation rate
Level range per channel (three or four channels in the TCS)	
TDMA	Pmin to +51 dBmV (32 QAM, 64 QAM) Pmin to +52 dBmV (8 QAM, 16 QAM) Pmin to +55 dBmV (QPSK)
S-CDMA	Pmin to +53 dBmV (all modulations), where: Pmin = +17 dBmV, 1280 kHz modulation rate Pmin = +20 dBmV, 2560 kHz modulation rate Pmin = +23 dBmV, 5120 kHz modulation rate
Output Impedance	75 Ω (nominal)
Frequency Range	DOCSIS 5-42 MHz (edge to edge), optional DOCSIS 5 to 65 MHz (edge to edge)
Compatibility	PC: 90496, Pentium, or later; Windows Vista™, 2000, XP or 7 or Linux® with Ethernet connection (older versions of Windows, although not specifically supported, will work with this cable modem)  Macintosh: Power PC or later; OS 9 or higher, Ethernet connection OS 9 or higher, Ethernet connection  UNIX: Ethernet connection  Home Networking: Ethernet router or wireless access point

Actual speeds will vary, and are often less than the maximum possible. Data transmission speed is approximate and depends on the configuration and capacity of your network, as well as the amount of traffic on the network.

\* 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 your cable provider.

