Asanté Desktop EN/SC Adapters

User's Manual

ASANTÉ

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This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

Operation of this equipment in a residential area is likely to cause interference, in which case, the user at his own risk and expense will be required to correct the interference in a commercial environment.

Warranty

The Asanté Desktop EN/SC Adapters have a limited lifetime warranty which applies to the original purchaser of the product.   Asanté Technologies, Inc. warrants that this product will be free from defects in title, materials and manufacturing workmanship. If the Asanté Desktop EN/SC Adapter is found to be defective, then, as your sole remedy and as the manufacturer's only obligation, Asanté Technologies, Inc. will repair or replace the product provided that (1) you call Asanté Technologies, Inc. for a Returned Merchandise Authorization (RMA) number, that (2) you clearly write this RMA number on the outside of the package, and that (3) you return it, postage prepaid, during the warranty period. This warranty is exclusive and is limited to the Asanté Desktop EN/SC Adapters.

This limited lifetime warranty shall not apply to Asanté Desktop EN/SC Adapters that have been subjected to abuse, misuse, abnormal electrical or environmental conditions, or any condition other than what can be considered normal use.

Note: The warranty card must be filed with Asanté Technologies, Inc. within 30 days after date of purchase.

Warranty Disclaimers

Asanté Technologies, Inc. makes no other warranties, express, implied, or otherwise, regarding the Asanté Desktop EN/SC Adapters, and specifically disclaims any warranty for merchantability or fitness for a particular purpose.

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1
Introduction

Introducing the Desktop EN/SC Adapters

Thank you for purchasing an Asanté Desktop EN/SC™ SCSI-to-Ethernet Adapter, a device that enables you to connect your desktop Macintosh to a 10BaseT or Thin Ethernet network.

There are two models of the Asanté Desktop EN/SC Adapter (see Figure 1-1):

- the Desktop EN/SC-10T/TN (with 10T and BNC connectors)
- the Desktop EN/SC-10T (with a 10T connector only)

Both the Desktop EN/SC Adapters pass Ethernet packets between a Macintosh computer and an Ethernet network using the Macintosh standard SCSI interface. Each model comes with a DB-25 to DB-25 SCSI cable.

The Asanté EN/SC Adapters are compatible with Apple System Software 6.0.7 and higher. (Refer to Appendix B for compatibility information.)
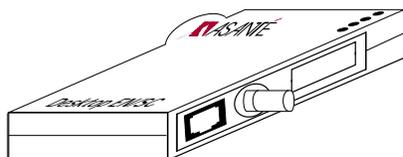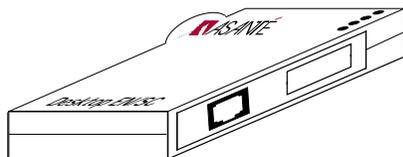
Desktop EN/SC-10T/TN Adapter   Desktop EN/SC-10T Adapter

Figure 1-1 Asanté Desktop EN/SC Adapters

Desktop EN/SC Adapter Features

❏ Compliant with the IEEE 802.3 standard for 10Base2 (thin BNC) and 10BaseT (twisted-pair) Ethernet

❏ Compatible with Apple® System 7, EtherTalk Phase 1™ and Phase 2 ™

❏ Support for AppleShare™, Novell NetWare™, TCP/IP, and other popular network software

❏ TroubleShooter diagnostic software for testing and identifying problems

❏ No external power required— power to the adapter is supplied by the SCSI port via the DB-25 to DB-25 cable

❏ Compact and portable design

❏ Status LEDs display status information — power, transmit, receive and link integrity

❏ Auto-sensing circuitry for 10Base-T and BNC ports on the EN/SC-10T/TN model

❏ Fixed SCSI ID at 6

Package Contents

❏ Asanté Desktop EN/SC Adapter

❏ READ ME FIRST sheet

❏ User's Manual

❏ Warranty / Registration Card

2
Installation

Installation Overview

This chapter provides instructions for installing the Desktop EN/SC-10T/TN Adapter and the EN/SC-10T Adapter.

The installation procedure has four parts:

- Preparing for the installation
- Installing the adapter
- Installing the Asanté EtherTalk software
- Accessing network services

Preparing for the installation

Observe the following safety precautions before and during the installation:

Δ **Important!** Before you connect and configure an Asanté Desktop EN/SC Adapter, turn off the Macintosh computer and all connected peripherals.

Δ Follow company guidelines and always plug or unplug devices connected to the SCSI port with the power off!

- Consult your network administrator about the installation and its effect on the network; other users must be warned of the possible interruption of network operations.

Checking the software and hardware

To install an Asanté Desktop EN/SC Adapter, you need the following software:

- Apple System Software 6.0.7 or higher
- Asanté EtherTalk Installer

Make sure you also have:

- An Ethernet network with AppleTalk-compatible devices
- The appropriate EN/SC Adapter for your computer

    Note: Refer to Appendix A of this manual for a complete listing of all supported Macintosh systems.

SCSI cable provided with the Desktop EN/SC Adapters

One DB-25 to DB-25 SCSI cable is provided with the EN/SC-10T/TN and EN/SC-10T Adapter (see Figure 2-1).
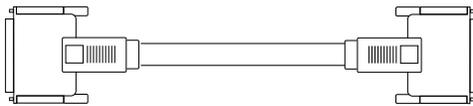
Figure 2-1   DB-25 to DB-25 SCSI cable

Identifying Ethernet cable requirements

Before you install an Asanté Desktop EN/SC Adapter, you must know the connection and termination requirements for your Ethernet cable type. You must also know the IEEE Ethernet length specifications. (See Appendix B for information about Ethernet length specifications.)

Ethernet cable	Requires	Comments
10BaseT	Hub and RJ45 connector	10BaseT-compliant hub required
Thin	BNC T-connector and 50-ohm terminator at each cable end	Thin Ethernet cable requires terminator at each end

SCSI address on the EN/SC Adapter

The SCSI address on the EN/SC Adapter is fixed at 6 and cannot be changed.

SCSI termination on the EN/SC Adapter

Since the DB25 SCSI port on the Asanté Desktop EN/SC Adapter is internally terminated, the adapter must be the only SCSI device you connect to the Macintosh. However, it may be one of several devices in a SCSI daisy chain if the following guidelines are adhered to:

- You must use a **DB-25 to DB-50 SCSI cable** — not the DB-25 to DB-25 SCSI cable included with the adapter — to add another device to the SCSI chain.

- The Desktop EN/SC Adapter must be placed at the **end** of the SCSI chain.

Installing a Desktop EN/SC Adapter

The EN/SC-10T/TN Adapter has an RJ45 and a BNC port while the EN/SC-10T Adapter has only the RJ45 port. If you are installing the EN/SC-10T Adapter, disregard the instructions for Thin Ethernet cabling.

1   Make sure all devices are turned off.

2   Plug one end of the SCSI cable provided into the adapter's SCSI port and the other end into the Macintosh computer's SCSI port (see Figure 2-2).
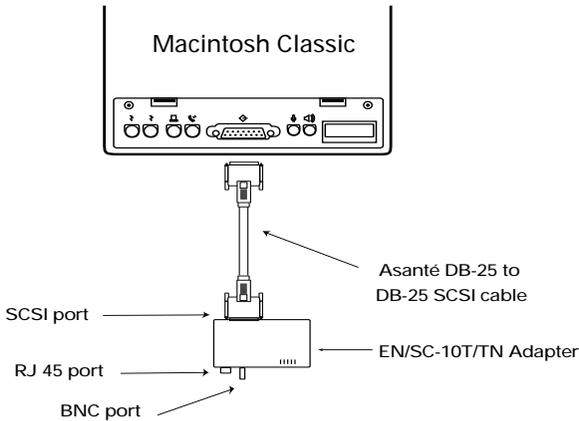
Figure 2-2 Connecting the EN/SC-10T/TN Adapter as a single SCSI device

3 Connect the adapter to the Ethernet cable. Follow
the guidelines below for your cable type:

10BaseT cabling

• Plug the RJ45 connector on one end of the Ether-
net cable into the adapter's RJ45 jack, and plug the
other end into a 10BaseT network hub.

Thin cabling

• Check with your network administrator before con-
necting the EN/SC Adapter to the network.

• If the Ethernet cable does not have a T-connector or
a BNC barrel connecting two cable segments,
splice the cable with the appropriate BNC hard-
ware.

• Connect the BNC-T connector on the Ethernet
cable to the adapter's BNC port.

• If the Macintosh is at the end of a network seg-
ment, keep the T-connector and terminator on the
segment cable and connect the T-connector to the
adapter's BNC port. The connector slips on, twists,
and locks in place.

Once you have connected the adapter to the network, you are
ready to install the EtherTalk software.

Installing EtherTalk software

An EtherTalk Installer diskette is included with your Asanté Desk-
top EN/SC Adapter. This diskette contains Asanté's EtherTalk
driver, AppleTalk and other Apple system extensions. Asanté's
EtherTalk device driver allows AppleTalk to communicate with
the EN/SC Adapter.

Two types of software installations

Asanté provides two types of installation— **Easy Install** and **Cus-
tomize Install**. To perform the customize install, you should be
experienced in network administration.

For detailed information about each installation, click the **Help**
button to display a help screen. The following table explains
which installation to choose:

Choose	When
Easy Install	• You want to install the AppleTalk version that is on the diskette and the Asanté Ethernet driver. • Your network does not present any potential compatibility problems with the AppleTalk version on the diskette. • You want access to EtherTalk Phase 2 network services.
Customize Install	• Your network has software that may conflict with the AppleTalk version on the diskette. • You want to install only specific parts of the Apple network software or just the Asanté driver software. Read the *Read Me First* file for more information about special situations and installation options. • You need to install EtherTalk Phase 1 network services.

Before you install Asanté's EtherTalk software, disable all exten-
sions and virus detection programs, then restart your Macintosh.

1   Read the *Read Me First* file before you install the
EtherTalk software. It contains information about
your installation and will help you determine if you
need a customized installation.

2   The instructions assume that you normally boot
from your hard disk.

3   Insert the Asanté EtherTalk Installer disk into your
Macintosh computer.

4   Double-click the **Installer** icon, then click **OK**
when the Installer banner appears. (Be sure to dou-
ble-click — do not drag the files from the diskette to
the System Folder.)

The following Easy Install dialog box appears:

Figure 2-3   Easy Install dialog box

To perform an Easy Install

1   Click **Install** to perform an Easy Install.

The Installer program examines your Macintosh com-
puter and installs the EN/SC EtherTalk driver and
AppleTalk as needed.

2   Click **Restart** when the system informs you that the installation is successful.

To perform a Customize install

To perform a Customize install, you should be an experienced Macintosh user with experience in network administration.

1   Open the *Read Me First* file on the diskette for an explanation of each installation option. Consult your network administrator if you do not understand the file.

2   Click **Customize**. A dialogue box appears showing a list of software options.

3   Select the appropriate option. (To select multiple operations, press **Shift-click**.)

4   The system informs you when the installation is completed.

5   Click **Restart** when prompted.

Note: If other Macintosh computers on the network have Asanté EtherTalk drivers, we recommend you upgrade all drivers to the most recent version.

Accessing network services

To connect to the Ethernet network, you must meet the following requirements:

*   Ethernet network with AppleTalk-compatible devices
*   AppleTalk must be active in the Chooser dialog box
*   EtherTalk must be active in the Control Panel

Asanté's EtherTalk driver software enables AppleTalk to interact with the EN/SC Adapter and to make a connection.

1   Open the Network control panel. Three network icons will appear.

2   Select **EtherTalk Alternate**.

3   Close the Network control panel. Your connection to the Ethernet network remains active until you switch to LocalTalk, disconnect the cable, or disconnect the Asanté EN/SC Adapter.

4   Select **Chooser** from the Apple menu.

5   The Chooser dialog box will appear, displaying all network drivers available as well as the AppleTalk Zones. Click once on the AppleTalk icon (and on AppleTalk Zone if displayed).

6   Select your server or device from the list in the right side of the window.

7   If AppleTalk is not active, click the **Active** button, close the chooser dialog box, then restart the Macintosh computer. Repeat steps 4 and 5.

3

TroubleShooter Diagnostic Software

The TroubleShooter diagnostic program is included with the EtherTalk drivers on the Asanté EtherTalk Installer diskette. The program runs diagnostic tests on the adapter to help you identify problems with the adapter. It also provides configuration information about the Macintosh computer and the adapter.

Running TroubleShooter Diagnostics

The TroubleShooter diagnostic program reinitializes and reconfigures your Ethernet connection and sends out data through the Ethernet port. Therefore, before you run TroubleShooter, you must:

- Save all open files and close all active applications
- Log out of any active network services
- Change from EtherTalk to LocalTalk
- Turn off virtual memory with System 7
- Restart your Macintosh with virus software, extensions and inits disabled

The following sections provide instructions for these operations.

Changing from EtherTalk to LocalTalk

1   Drag any remote volumes into the Trash.

2   Change from EtherTalk to LocalTalk by clicking the LocalTalk icon in the network control panel.

3   Disable virus software, extensions and inits.

4   Restart the Macintosh.

Starting TroubleShooter Diagnostics

1   Insert the EtherTalk Installer diskette into your com-
puter, then open the diskette's directory window.

2   Copy the TroubleShooter software to the desktop or
to a folder such as the Net Utils folder.

3   Double-click the **TroubleShooter** icon to start the
program, then click **OK** in the TroubleShooter win-
dow.

4   If you have not changed your EtherTalk connection to
a LocalTalk connection, TroubleShooter warns you to
do so. Click **Exit**, make the change from EtherTalk to
LocalTalk (following the instructions on page 1 of this
chapter), then restart the Macintosh.

5   TroubleShooter loads and **automatically** runs the fol-
lowing three default tests:

   •   Memory buffer test — writes to and reads from
the packet buffer RAM to verify its addressability
and operation.

   •   Network interface controller test— writes to and
reads from the controller register to verify its
operation. It also issues a transmit command to
verify the network interface controller's integrity.

   •   Ping-Pong test — transmits and receives special
packets to verify communication with other sys-
tems on the network. If the Ping-Pong test fails,
check your connectors and cables.

6   TroubleShooter opens the TroubleShooter window
and displays results from the following tests (see Fig-
ure 3-1):
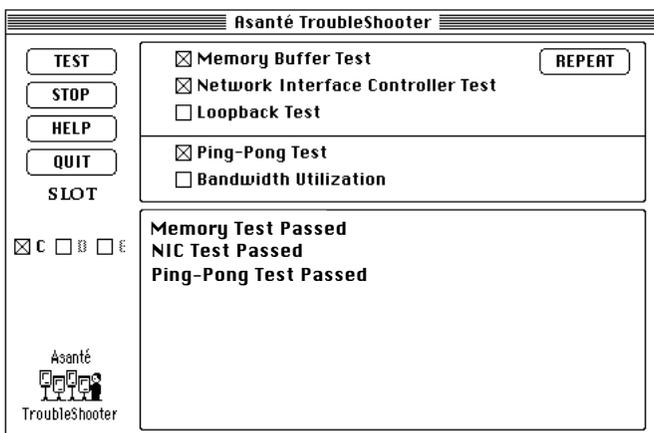
Figure 3-1   TroubleShooter window

Running other TroubleShooter tests

The Loopback and Bandwidth Utilization tests are available in addition to the three default tests for validating the EN/SC Adapter.

Running the Loopback test

The Loopback test verifies the operation of the major components of the interface circuitry, the adapter, the serial network interface, and the thin port transceiver by transmitting and receiving special packets.

When using the Desktop EN/SC-10T/TN Adapter, disconnect the thin Ethernet cable and attach a T-connector. Terminate each end of the T-connector with a 50-ohm terminator.

To run the Loopback test, perform the following steps:

1   Click the **Loopback Test** checkbox to select the test.

2   Click **TEST** to start the Loopback test.

3   If the first test fails, click **REPEAT**.

4   If the tests are passed successfully, everything is oper-
ating properly.

If you leave the Macintosh connected to the network during the
Loopback test, the test may fail due to packet collisions. This
does not indicate the equipment is faulty. Repeat the test by
clicking **REPEAT**. You need only one successful test to verify
proper product operation. If the Loopback test fails repeatedly,
please contact Asanté Technical Support (see Appendix C).

Running the Bandwidth Utilization test

1   Reconnect the Ethernet cable.

2   Click the **Bandwidth Utilization** checkbox to select
the test.

3   Click the **TEST** button to start the test.

4   Data representing network activity is collected from
the network during the test.

5   To stop data acquisition, click **STOP** or press any key
on your keyboard.

6   The performance statistics are displayed in the Trou-
bleShooter dialog box as shown below:
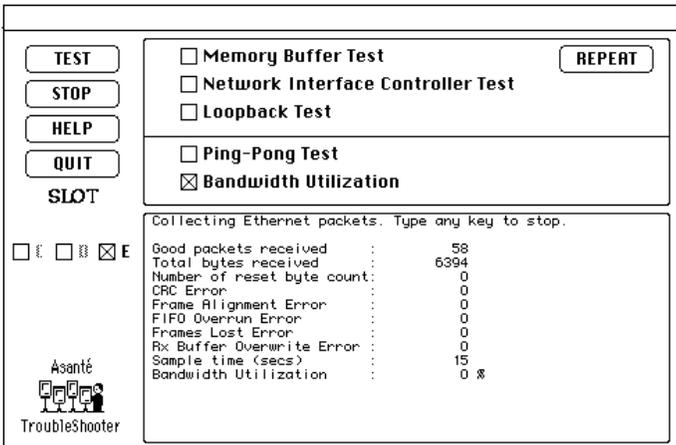
Figure 3-2   Bandwidth Utilization Test window

What the Bandwidth Utilization test displays

The Bandwidth Utilization test takes a "snap shot" of the network. The test can be used in conjunction with other network analysis tools to identify network problems. A number of network criteria are tested and displayed in the window. The criteria are described briefly below:

- **Good packets received** — Total number of good packets (error-free) received from the network by the adapter. This allows you to evaluate activity on the network. The activity level can be used as a benchmark to determine changes in network performance.

- **Total received** — Total number of bytes received from the network by the adapter. Good Packets received displays the total number of packets, not the packet size. Total bytes received is more specific; it displays the actual byte count.

- **Number of reset byte count** — This number increases in increments of (1) after each 10^9 byte received from the network by the adapter.

- **CRC Error** — Indicates the number of packets with CRC (Cyclic Redundancy Check) errors received from the network by the adapter. When a packet is transmitted, a mathematical calculation is done on the header and data and is appended to the end of the frame. The receiver of the packet performs the same computation. If the computations are not equal, the packet is discarded and a CRC error is issued.

- **Frame Alignment Error** — Indicates the number of misaligned packets received from the network by the adapter. An Ethernet frame is misaligned if it does not end in an 8-bit boundary.

- **FIFO Overrun Error** —This error occurs when FIFO (First In, First Out) is disabled, causing an overflow during reception. The reception of the packet is aborted.

- **Frame Lost Error** — This error represents the number of lost frames received from the network by the adapter.

- **Receive Buffer Overwrite Error** —This error occurs when the receive buffer is full because of heavy network traffic.

- **Sample Time** —The time in seconds from test-start to test-completion.

- **Bandwidth Utilization** —Total bandwidth utilization of the network. If it is more than 2 percent, it will affect the FIFO Overrun Error and Frame Lost errors.

If a test fails

If a test fails, TroubleShooter displays an error message in the main dialog box. The message generally consists of three parts:

- The name of the diagnostic test
- "Failed"
- A possible reason for the failure

Check the connections from your Macintosh to the Ethernet cable, then repeat the tests.

If the test fails repeatedly, make a note of the error message, quit the TroubleShooter diagnostics, and contact Asanté Technical Support (see Appendix C).

Obtaining system configuration information

TroubleShooter provides configuration information about your Macintosh computer and your Asanté EN/SC Adapter.

The File menu provides the configuration information in two sub-menu items— Get System Information and Get Adapter Information. The following information is displayed in the submenus:

Menu	Displays
Get System Information	• System software version number
	• Machine type
	• Memory size
	• ROM version number
	• Installed AppleTalk version
Get Adapter Information	• Summary of the Ethernet interface hardware specifications
	• Expansion slot used
	• Card type
	• Card's 6-byte Ethernet address
	• Card's buffer size
	• Asanté driver version: version 5.1 and higher

Quitting TroubleShooter Diagnostics and restarting network services

To quit TroubleShooter, click the **QUIT** button in the Trouble-Shooter dialog box or select **Quit** from the menu bar.

To restart network services, perform the following steps:

1   Activate AppleTalk in the Chooser.

2   Select **EtherTalk** in the Network control panel.

3   Restart the Macintosh computer.

4   Select **Chooser**, then select a network resource such as AppleShare or another network service.

4

Troubleshooting

This chapter gives basic troubleshooting suggestions for problems
you may encounter when installing or using an Asanté Desktop
EN/SC Adapter. If you are unable to solve a problem after reading
this chapter, please contact Asanté Technical Support for assis-
tance (see Appendix C).

Checking the Basics

If you have a problem accessing a network node, check the follow-
ing basic requirements:

✔ AppleTalk is active in the Chooser.

✔ EtherTalk Alternate is selected in the Network Control
   Panel. Make sure you are using the network EtherTalk ver-
   sion (Phase 1 or Phase 2).

✔ AppleTalk zones are visible, when applicable.

✔ Cabling and connections are secure.

✔ The LEDs on the EN/SC indicate no problems. Refer to
   Appendix A of this manual for information about the
   LEDs.

✔ The Asanté EtherTalk driver is installed on the start-up disk
   (the EN/SC EtherTalk icon appears at restart, or the Ether-
   Talk Alternate icon is visible in the Control Panel).

✔ Run the Asanté TroubleShooter Diagnostics program to
   identify problems in the installation. See Chapter 3 of
   this manual for more information.

Other tips

About EtherTalk Phase 1 and Phase 2

If you have installed EtherTalk Phase 1 and Phase 2, selecting Phase 1 may make Phase 2 network resources invisible and unavailable. The reverse is true for Phase 2. To see if this is the case, switch from one EtherTalk icon to the other.

Phase 1 networks are limited to 254 nodes and one zone. In a Phase 2 network, up to 16 million nodes can be addressed on an Ethernet network. Phase 2 networks support multiple zones sharing the same physical cable. A great majority of network installations now use only Phase 2.

Numerics

A

B

C

E

F

I

L

A

Desktop EN/SC Adapter Specifications

Systems supported

Macintosh Classic Family; II, IIX, IIsi, IIcx, IIci, IIvx; SE: SE/30; LC Family, except PowerPC versions; Performa Family, except 631CD and PowerPC versions

Standards supported

IEEE 802.3 Ethernet specifications for Thin coaxial (10Base2), and Unshielded Twisted-Pair (10BaseT) media. Phase 1 and Phase 2 EtherTalk, register-level compatible with Apple Computer's Ethernet cards, AppleTalk Filing Protocol and MacTCP

Software supported

AppleShare™, Novell NetWare™ for Macintosh, TCP/IP, and other popular network software

Protocols supported

AFP, TCP/IP, DECnet and LAT protocols

SCSI address

Fixed at 6

Operating temperature

0˚ to 50˚ C

Relative humidity: operating 5% to 85% (non-condensing)

Physical dimension

4.5" x 2.6" x 1"

Ethernet address

Asanté Ethernet ID is 000094 xx xx xx (located on the bottom of the EN/SC Adapter)

EN/SC Adapter LEDs

Light	ON	OFF	BLINKING
PWR (power)	ON (operating)	OFF (inoperable)	not applicable
TX (Transmit)	network Activity	no network activity	transmitting packets
RX (Receive)	network Activity	no packets received	receiving packets
LI (Link Integrity)	10BaseT link integrity enabled Link is OK when Link Disabled is also OFF.	no 10BaseT link integrity	not applicable

B

Ethernet Specifications

When you connect your Macintosh computer to an Ethernet network using an Asanté Desktop EN/SC Adapter, you must observe the following Ethernet specifications:

Parameter	10Base2	10BaseT
Cable	Thin	UTP
Impedance	50 ohms	100 ohms
Connector on cable	BNC	RJ45
Data transfer rate	10 Mbps	10 Mbps
Topology	Bus	Star
Segment length (maximum)	185 meters	100 meters
Distance between nodes (minimum)	0.5 meter	n/a
Nodes per segment (maximum)	30	n/a

C

Technical Support

Contacting Technical Support

To contact Asanté Technical Support:

Telephone	(800) 622-7464
	(408) 435-0706
Fax	(408) 432-6018
Fax-Back	(800) 741-8607
	(408) 954-8607
Bulletin Board Service (BBS)	(408) 432-1416
ARA BBS (guest log in)	(408) 894-0765
AppleLink mail/BBS	ASANTE
FTP Archive	ftp.asante.com
Internet Mail	support@asante.com
World Wide Web Site	http://www.asante.com

Technical Support Hours

6:00 AM to 6:00 PM Pacific Standard Time, Monday - Friday.