Cisco OEM Servers – Cisco Logo'd
Cisco APL-AON-8342-K9
8863-PKR

IMPORTANT!   Service Instructions

You must print and follow these instructions *BEFORE* taking a service call on this machine.

Machine data:
MT = 0159-101
IBM MT = 8863-PKR

The Cisco AON server has no keyboard, monitor or mouse!

Attachment of a remote terminal connection using a laptop computer is required to service the machine

Tool Requirements

Listed below are the tools that an SSR MUST have to prior to taking a call on the AON server:

- Laptop computer with Windows XP or Windows 2000 installed with HyperTerminal application available. (HyperTerminal comes standard in Windows XP and Windows 2000)
- Cable Kit (IBM Tool P/N 62H4857)
- USB Serial/Parallel adapter (FRU P/N 22P9036) or PCMCIA Serial Adapter Service Tool (P/N 39X8939) if using a laptop without a serial port
- USB Floppy Drive (FRU P/N 05K9283) or equivalent if using diskette images for BIOS and code updates
  Note: AON has no on-board floppy drive

Product Overview

The Cisco 0159-101 server is a single fixed configuration of IBM's eServer xSeries x366 with Cisco branding and custom Cisco content. The Cisco branded model is called AON (Application Oriented Network). This unique IBM model 8863-PKR is based on the RoHS xSeries x366 model 8863-1SU with the following modifications:

- Custom bezel with Cisco color, logo, product name and product ID
- Customized Cisco BIOS (based on IBM standard BIOS)
  Note: Always check with GSSC for latest release level
- 128MB Compact Flash module with Cisco boot code
- Custom PCI adapter card that hosts the compact flash (slot 2)
- NetXtreme 1000T+ Copper Ethernet adapter – RoHS (slot 1)
- 2 x 36GB 10K rpm 2.5" SAS Hot-Swap HDDs - RoHS with Cisco color bezel
- Custom CMOS settings on the I/O card
- Preloaded Cisco AON OS image – **Cisco service responsibility**
- Tarari PCI card (slot 6) – **Cisco service responsibility**
- **No keyboard**
- **No mouse**
- **No monitor**

All of the IBM serviced components of the server have IBM FRU/CRU parts.

Service Information

Service Deliverables

Cisco is requesting IBM to provide On Site Services per Contract # MSA MW00101 between IBM and Cisco Systems. The following On Site Service levels are required:
- 7x24x4 Same Day
- 5x9 NBD
- 5x9x4

Call Flow

The "Cisco xSeries" call flow follows the same call flow as standard IBM xSeries machines, going thru the Atlanta Service Support Center for call screening. MT is 0159.

Cisco TAC (Technical Assistance Center) will place all service requests to IBM, not end users. Cisco TAC is responsible for L1/L2 of the AON integrated product. Once a problem is isolated to the IBM manufactured hardware, Cisco TAC will place a service request to the GSSC. The support flow will be: End User→Cisco TAC→GSSC L1→WWBO→PE

Advance Notice of Installation Address

Because the AON server requires special tools and service procedures, Cisco has agreed to give IBM approximately 30 days advance notice of the installation address for any AON system to be serviced. OEM Service Planning and the NSO will communicate this information to the affected IBM service geography location.

Special Service Considerations

The Cisco 0159-101 AON server is essentially an IBM xSeries 8863 with some custom content. Standard x366 PD, diagnostic and part replacement procedures should be employed to service this model. The following outlines the unique service procedures that are required due to the custom content and unique Cisco field environment.

Attaching a Laptop Computer as a Remote Console Device

In the Cisco field environment, there is no keyboard or monitor available to the SSR. A laptop computer will need to be connected as a terminal emulation device. Use the following procedure to launch and configure HyperTerminal and attach the laptop to the server.

Launch and Configure HyperTerminal from Windows XP or Windows 2000
1. From the **Start** menu select **Programs → Accessories → Communications → HyperTerminal**
2. Enter a name (e.g. AON Server) and select an icon for the connection in the *Connection Description* dialogue box
3. Press **OK**
4. In the *Connect To* dialog box select **COM1** (or active COM port on your laptop) from the *Connect using:* drop down menu
5. Press **OK**
6. Select the following from the COM(X) Properties Port Settings drop down menus
   Bits per second: → 9600
   Data bits: → 8
   Parity: → None
   Stop bits: → 1
   Flow control: → None
7. Press **OK**
8. Select **File → Properties** from the HyperTerminal task bar
9. Click on the *Settings* tab
10. Select VT100 in the *Emulation* drop down menu
11. Press **OK**

Connect the laptop using a null modem cable

1. Obtain cable kit with null modem cable Tool # 62H4857. The null modem cable is the cable with female DB25 & DB9 pigtails on each end.
2. Connect one end of the null modem cable to the COM port on your laptop that was selected when configuring the HyperTerminal session.

   Note: If your laptop does not have a serial port, obtain PCMCIA serial adapter (Tool P/N 39X8939) for serial port connectivity

   Or

   Obtain USB Serial/Parallel adapter (FRU# 22P9036) and connect using a USB port.

   Here is a link to the IBM web to down load the driver for installing the USB Serial/Parallel adapter if you have not previously installed the device.
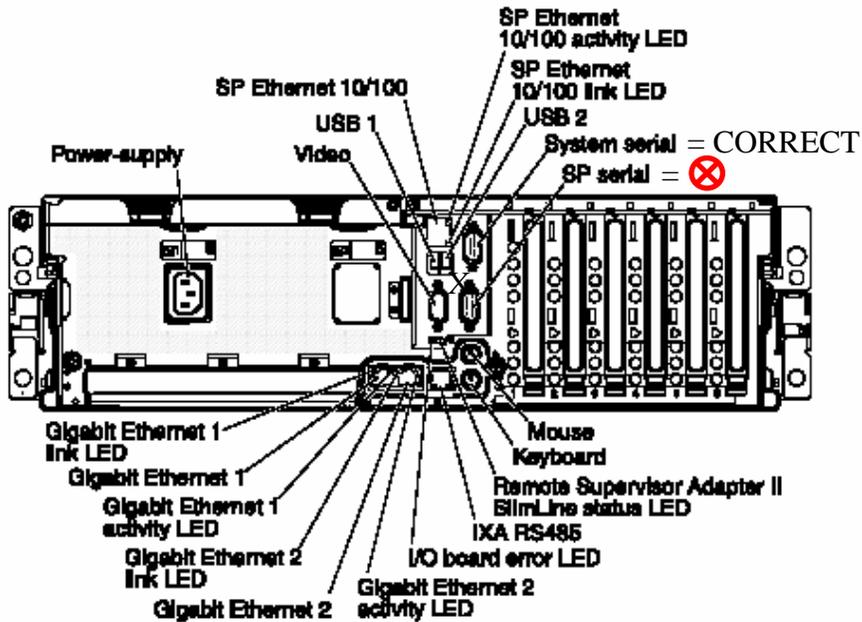
   http://www-307.ibm.com/pc/support/site.wss/document.do?sitestyle=ibm&lndocid=MIGR-41778

3. Connect the other end of the cable to System Serial Port on the AON server. The System Serial Port is the upper serial port on the rear panel of the AON server. See Figure 1. If the customer has a remote console connected to the System Serial Port, unplug the customer connection and attach the cable.

    CAUTION: The System Serial Port is the upper serial port connector and is identified with a teal color bezel. The lower, SP Serial Port is not active and cannot be used for this function.

Figure 1. Location of System Serial Port Connector for Remote Terminal Attachment

SP Ethernet
10/100 activity LED

SP Ethernet 10/100
SP Ethernet
10/100 link LED

USB 1
USB 2

Power-supply   Video   System serial = CORRECT
SP serial = ⊗

Gigabit Ethernet 1
link LED

Gigabit Ethernet 1   Mouse
                                             Keyboard
Gigabit Ethernet 1
activity LED   Remote Supervisor Adapter II
                                 SlimLine status LED
Gigabit Ethernet 2   IXA RS485
link LED
                                 I/O board error LED
                Gigabit Ethernet 2
Gigabit Ethernet 2 activity LED

4. Laptop can now be used as a remote console. Proceed with x366 service activity.

Custom Cisco AON BIOS

The BIOS on the Cisco AON server is a custom BIOS based on the standard IBM BIOS. It is mandatory to use the Cisco AON BIOS CD iso-image or BIOS flash diskette when updating BIOS during a service call.

⚠ **CAUTION: Always flash a replacement planar FRU with the Cisco BIOS using the CD or diskette image. See Appendix 3.**

The latest level CD and diskette images for the Cisco BIOS flash utility can be downloaded from CORE and InfoTips.
Note: Always check with GSSC for latest release level

The flash utility works the same as the standard IBM BIOS for the x366. When flashing BIOS, update the Serial Number when prompted to the IBM seven digit

serial number located on the chassis (e.g. 26K8806). Also update the Machine Type/Model when prompted to **8863PKR**. Make sure to save settings.

⚠ **CAUTION: The Cisco AON application will not run without the IBM Serial Number and Machine Type/Model correctly set in BIOS. Always verify settings are correct.**

Verify the Machine Type Model and Serial Number are correct:
- Boot to F1 Setup
- Select System Information
- Select Product Data
- Verify Serial Number and Machine Type/Model fields are correct
- If Serial Number and/or Machine Type/Model are incorrect, rerun BIOS flash

I/O Card Replacement

The I/O card contains the BIOS CMOS settings.

⚠ **CAUTION: The settings for the Cisco AON server are different then the standard IBM default settings. When replacing an I/O card FRU in an AON machine, it is necessary to run a bootable CMOS settings utility to update the I/O card to the Cisco defaults. The bootable CD and diskette image utility can be downloaded from CORE and InfoTips.**

Use the following procedure to update the CMOS settings.

Note: The utility will flash the CMOS settings and warm reboot. This takes approximately 4 minutes. During this period, there will be no video directed to the laptop.

1. Obtain a copy of the CMOS settings utility from CORE: See Appendix 3
2. Insert the CD or diskette into the drive
3. Boot the server
4. Wait until the "Cisco AON CMOS Settings Updated Successfully" message appears.
5. Remove CD or diskette
6. Proceed with normal service activity

Compact Flash PCI card with flash module

The PCI card in slot 2 is an IBM designed and supported adapter that contains a 128MB flash memory module. The flash module contains the Cisco AON boot image. If "O/S cannot be found" errors occur, reseat / replace the flash module

with FRU P/N 39Y6827 and/or PCI card with FRU P/N 41Y3137. Contact Atlanta GSSC for assistance.

⚠ **CAUTION: The compact flash module FRU (P/N 39Y6827) cannot be substituted since the FRU contains the Cisco boot code.**

Tarari PCI Card

The PCI card in slot 6 is a third party adapter made by Tarari. Although IBM integrates this card into the machine as an accommodation to Cisco, IBM has no warranty or service responsibility for this card. Cisco should screen for failing Tarari cards prior to placing a service request to IBM. If during IBM PD a problem is isolated to this card, the IBM action is to turn this problem over to Cisco TAC.

⚠ **CAUTION: IBM does not stock this service part. If IBM determines the PCI card is failing, the SSR should contact the Front Office to have this communicated to Cisco Systems for resolution.**

APPENDIX 1

AON Trouble Shooting Guide

Use the following table to diagnosis and correct some unique problems found in servicing the Cisco AON server.

PROBLEM	CAUSE	ACTION
Remote laptop console not operational (No video or key entry over serial connection)	• Straight serial cable used instead of a null modem cable • Null modem cable connected to the SP Serial connector; not the System Serial Connector • COM port on laptop is disabled • COM port selected in HyperTerminal setup does not match the laptop active COM port	• Make sure cable is a null modem cable • Connect null modem cable into the System Serial connector (Top serial port connector). • Using the Windows Device Manager, make sure that the COM port is enabled and that no conflicts exist. • Make sure the COM port used by HyperTerminal matches the active COM port connected to the null modem cable

Remote console video characters appear erroneous (No readable text)	• COM port settings in HyperTerminal are incorrect
	
	• HyperTerminal Emulation is set incorrectly
		• Relaunch HyperTerminal and select the following COM port settings
		  - Bits per second: 9600
		  - Data Bits: 8
		  - Parity: None
		  - Stop Bits: 1
		  - Flow Control: None
		
		• Set Emulation to VT100 from the HyperTerminal Properties / Settings menu.

Cisco OS will not load/run after flashing BIOS or replacing a planar board	• Serial Number and/or Machine Type / Model not set correctly in BIOS	• Boot to F1 Configuration and Set Up to verify Serial Number and Machine Type / Model are set correctly in the Product Data. Run BIOS flash utility if changes are required.

OS cannot be found error	• PCI Flash card or compact flash memory module defective	• Reseat/replace the PCI card in slot 2 or the flash module on the PCI card
Remote Console not working after replacing the Super I/O card	• Replacement FRU contains IBM CMOS defaults which do not enable console redirection to the serial port	• Run the CMOS Settings flash utility available on CORE.
PCI Card in slot 6 appears defective	• Unknown	• Contact IBM Remote Support to have Cisco take over Service responsibility
My laptop has no serial port to connect the null modem cable	• No onboard serial connector	• Obtain USB Serial/Parallel adapter (FRU# 22P9036) and connect through a USB port

APPENDIX 2

Service Parts

IBM owned service parts will be used for service.

⚠ **CAUTION: Cisco Systems TAC should be consulted before replacing any part a second time. Many functions of this server are under control of the Cisco application and OS.**

The FRU list is as follows:

* = Cisco unique part

FRU P/N	DESCRIPTION	CRU/FRU
01R1479	Baffle, Air Block	CRU – T2
03K9050	PCI Spacer	CRU – T1
13M7878	Processor – 3.16GHz Cranford (4)	FRU
13N2256	Battery Pack	CRU – T2
24P1295	Lift Handle Kit	CRU – T1
24R2723	Power Supply – 1300 Watt	CRU – T1
24R2750	VRM 2U/105A (Prime)	FRU
24R2704	VRM 2U/105A (Alt)	FRU
25K9610	Cable – SAS 4X	FRU
25K9618	Cable – Zeus USB	FRU
25K9626	Cable – DVD	CRU – T2
26K8805	Heat Sink	FRU
26K8836	Retention Module	FRU
26K8923	System Label	CRU – T1
26K8943	Scalability Filler	FRU
26K8947	Top Cover	CRU – T1
26K8948	Bracket – EIA Mounting	FRU
26K8951	PCI Card Guide	CRU – T2
33F8354	Battery – 3.0V CMOS Coin Cell	CRU – T1
39M2509	Cable, PCI	CRU – T2
*39M2637	Bezel Kit – Cisco	CRU – T1
*39M2638	HDD Filler – Cisco	CRU – T1
39M2641	Cable, Serial	CRU – T2
39M2693	Fan, 80mm	CRU – T1
39M2694	Fan, 92mm	CRU – T1
39M2695	Chassis Assembly	FRU
39M2696	Lift Kit	CRU – T1
39M2697	Carrier, Media	FRU
39M2699	Card, PCI	CRU – T2
39M3541	CD/DVD (Prime)	CRU – T2
39M3563	CD/DVD (Alt)	CRU – T2

39M5377	Line Cord	CRU – T1
39M5808	1GB 3200 ECC Memory	CRU – T1
39Y6081	Ethernet Card	CRU – T2
39R8731	Card, RAID 8i	CRU – T2
*39Y6827	Compact Flash Module w/ Cisco AON image	CRU – T1
*39Y8108	HDD Tray – Cisco	CRU – T2
*40K1131	HDD, 36GB 10K SCSI - Cisco	CRU – T1
40K6556	Cable Management Arm	CRU – T1
40K6591	Kit, Rack	CRU – T1
40K6592	Kit, Shipping Brkt	CRU – T1
*41Y3137	PCI Card – Compact Flash - Cisco	CRU – T2
41Y3151	BkPlane, Rack Pwr	FRU
41Y3152	Card, Super I/O	CRU – T2
41Y3153	Card, Memory	CRU – T2
41Y3155	Card, PCI	FRU
41Y3157	Card, Scal	FRU
41Y3161	SAS BkPlane	CRU – T2
41Y3166	SAS Super I/O	CRU – T2
41Y8730	Kit, Misc	CRU – T1
42C2618	Cable, SAS Power	CRU – T2
59P4739	Alcohol Wipe	CRU – T1
59P4740	Thermal Grease	CRU – T1

APPENDIX 3

<u>AON Machine Code</u>

The following are the supported machine code levels for the Cisco AON server. The highlighted files are unique to the Cisco server. The non-highlighted files are common code for the 8863 Machine Type.

Note: Always check with GSSC for latest supported level. The Cisco BIOS and I/O Card CMOS Settings Utility can be downloaded from CORE and InfoTips.

Cisco BIOS 54b
- **oem_fw_bios_zuec54b-csco_anyos_i386.img** → BIOS 54b flash utility diskette image for Cisco AON **(unique to Cisco)**
- **oem_fw_bios_zuec54b-csco_anyos_i386.iso** → BIOS 54b flash utility CD image for Cisco AON **(unique to Cisco)**

I/O Card CMOS Settings Utility
- **IBM Service CMOS Settings Cisco AONs-V1.img** → CMOS Settings Utility diskette image for Cisco AON **(unique to Cisco)**
- **IBM Service CMOS Settings Cisco AONs-V1.iso** → CMOS Settings Utility CD image for Cisco AON **(unique to Cisco)**

BMC Firmware
- lbm_fw_bmc_z2bt05e_dos_i386.img → BMC version 2-05 for IBM (and Cisco)

CPLD Code
- Heud18a.img → CPLD 18 for IBM (and Cisco)

Diagnostics Code
- lbm_fw_diag_zuyt27a-1_anyos_intel32.img → Diags 27 diskette 1 of 2 for IBM (and Cisco)
- lbm_fw_diag_zuyt27a-2_anyos_intel32.img → Diags 27 diskette 2 of 2 for IBM (and Cisco)

ServeRAID BIOS & Firmware
- Islamorado_8_30_22_K42006-cdrom1.iso (has BIOS / Firmware and drivers for IBM (and Cisco)