Strata CIX40
R5.2 Software - R1 ~ R3 Hardware

Installation and Maintenance Manual

Publication Information

Toshiba America Information Systems, Inc.
Telecommunication Systems Division

Publication Information

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CIX-IM-CIX40-VC-E

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Strata CIX40 General End User Information

The Strata CIX40 IP Business Communication System is registered in accordance with the provisions of Part 68 of the Federal Communications Commission's Rules and Regulations.

FCC Requirements

Means of Connection: The Federal Communications Commission (FCC) has established rules which permit the Strata CIX system to be connected directly to the telephone network. Connection points are provided by the telephone company—connections for this type of customer-provided equipment will not be provided on coin lines. Connections to party lines are subject to state tariffs.

Incidence of Harm: If the system is malfunctioning, it may also be disrupting the telephone network. The system should be disconnected until the problem can be determined and repaired. If this is not done, the telephone company may temporarily disconnect service. If possible, they will notify you in advance, but, if advance notice is not practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC.

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Telephone Network Compatibility: The telephone company may make changes in its facilities, equipment, operations, and procedures. If such changes affect the compatibility or use of the Strata CIX100, CIX200 or CIX670 system, the telephone company will notify you in advance to give you an opportunity to maintain uninterrupted service.

Notification of Telephone Company: Before connecting a Strata CIX system to the telephone network, the telephone company may request the following:

1. Your telephone number.
2. FCC and ACTA registration

- Strata CIX100, CIX200 or CIX670 may be configured as a Key, Hybrid or PBX telephone system. The appropriate configuration for your system is dependent upon your operation of the system.
- If the operation of your system is only manual selection of outgoing lines, it may be registered as a Key telephone system.
- If your operation requires automatic selection of outgoing lines, such as dial access, Least Cost Routing, Pooled Line Buttons, etc., the system must be registered as a Hybrid telephone system. In addition to the above, certain features (tie Lines, Off-premises Stations, etc.) may also require Hybrid telephone system registration in some areas.
- If you are unsure of your type of operation and/or the appropriate FCC registration number, contact your local Toshiba telecommunications distributor for assistance.

FCC Registration Numbers			
SYSTEM	**PBX** Fully-protected PBXs	**Hybrid** Fully-protected multifunction systems	**KEY** Fully-protected telephone key systems
CIX40	N/A	CJ6MF03BDTCHS403	N/A
CIX100	CJ6-MUL-35931-PF-E	CJ6-MUL-35930-MF-E	CJ6-MUL-35929-KF-E
CIX200	CJ6PF03BDTCHS192	CJ6MF03BDTCHS192	CJ6KD03BDTCHS192
CIX670	CJ6-MUL-35931-PF-E	CJ6-MUL-35930-MF-E	CJ6-MUL-35929-KF-E

- Ringer equivalence number: 0.3B. The ringer equivalence number (REN) is useful to determine the quantity of devices which you may connect to your telephone line and still have all of those devices ring when your number is called. In most areas, but not all, the sum of the RENs of all devices connected to one line should not exceed five (5.0B). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to ascertain the maximum REN for your calling area.

3. Network connection information USOC jack required: RJ11/14C, RJ21/2E/2F/2G/2HX/RJ49C (see Network Requirements in this document). Items 2, 3 and 4 are also indicated on the equipment label.
4. Authorized Network Parts: 02LS2/GS2, 02RV2-T/O, OL13C/B, T11/12/31/32M, 04DU9-BN/DN/1SN, 02IS5, 04DU9-BN/DN/1SN1ZN

Radio Frequency Interference

Warning: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the manufacturer's instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case, the user, at his/her own expense, will be required to take whatever measures may be required to correct the interference.

Underwriters Laboratory

This system is listed with Underwriters Laboratory (UL). Secondary protection is required, on any wiring from any telephone that exits the building or is subject to lightning or other electrical surges, and on DID, OPS, and Tie lines. (Additional information is provided in this manual.)

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CP01, Issue 8, Part I Section 14.1
Notice: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the Equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.
Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION! **Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.**

CP01, Issue 8, Part I Section 14.2
Ringer Equivalence Notice: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The terminal on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the Devices does not exceed 5.

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Toshiba America Information Systems, Inc.
Telecommunication Systems Division
9740 Irvine Boulevard
Irvine, California 92618-1697
United States of America

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Chapter 2 – CIX40 Default Database

Chapter 3 – CIX40 IP Telephony

CIX40 Installation 1

This document explains how to install the Strata CIX40 Software Release 5.20 system. It includes information on site requirements, wiring diagrams, and step-by-step instructions to install the unit(s), the ground wiring, AC power cabling, reserve power (battery backup), and the Printed Circuit Boards (PCB). CIX40 programming requires eManager R5.10-A07 or later. GVPH programming requires UADM2 or later.

CIX40 Introduction

The Strata CIX40 system is designed for wall mounting and occupies very little space. It is a compact system that provides large system features. Refer to Table 1-3 for cabinet dimensions and weight.

Figure 1-1 CIX40 Cabinet Font View

CIX40 System Cabinet Versions

The CIX40 system is available on three hardware versions. The Release 1 cabinet is labeled CHSU40A. The Release 2 is labeled CHSU40A2. The Release 3 is labeled CHSU40A3. The system label is on the outside of the CIX40 cabinet on the right side. Throughout this manual R1 HW and R2 HW refer to the earlier (CHSU40A and CHSU40A2) systems and R3 HW refers to the later CHSU40A3 systems.

CIX40 Release 2 and Release 3 Cabinet System Capacities

The GCTU2 processor (also used in the CIX40 R1 and R2 cabinets) comes with a built-in maintenance modem (AMDS), one Music on Hold (MOH) interface, one IP interface (NIC), one External Paging interface, one relay contact, and one Secure Digital card slot.

The basic CIX40 R3 Hardware system is equipped with GCTU2 and GMAU4.

The basic CIX40 R2 Hardware system is equipped with GCTU2 and GMAU3.

Both systems support:

- Eight digital telephone ports
- Four CO line ports with Caller ID interface
- One standard single line (2500-set) telephone port.

The system can be expanded, using optional interface cards, to a total of up to 64 ports supporting the items shown in Table1-1.

Note These are maximum possible capacities. Not all maximums can be equipped simultaneously. Some features may require additional licenses.

Table 1-1 CIX40 R2 and R3 Cabinet Configurations and Capacities (R5.1 or later SW)

Analog CO Lines	Digital Telephones	IP Channels	Equipment
4	8	0	Cabinet (CHSU40A2 or CHSU40A3)
7	16	0	Cabinet with: GCDU2A
8	8	0	Cabinet with: GCOCIH1A
11	16	0	Cabinet with: GCDU2A, GCOCIH1A
4	8	8, 16, 24	Cabinet with: GIPH, GIPU8 or MIPU16 or MIPU24
7	16	8, 16, 24	Cabinet with: GCDU2A and GIPH, GIPU8 or MIPU16 or MIPU24
Voice Mail: GVPH1A can be installed in all of the above configurations. Includes 4 default VM Ports, can expand to 6 or 8 VM Ports with the LIC2-GVPH license			
Analog FX/Modem Ports: One analog station port is standard on the Base cabinet; a second can be added by installing a GSTU1A			

CIX40 Release 1 Cabinet System Capacities

CIX40 R1 Hardware systems can be upgraded to Release 5.20 software. The GCTU2 processor comes with a built-in maintenance modem (AMDS), one Music on Hold (MOH) interface, one IP interface (NIC), one External Paging interface, one relay contact, and one Secure Digital card slot.

The basic CIX40 R1 Hardware system is equipped with GCTU2 and GMAU2 supporting:

- Eight digital telephone ports
- Three CO line ports with Caller ID interface
- One standard single line (2500-set) telephone port.

The system can be expanded, using optional interface cards, to a total of up to 64 ports supporting the items shown in Table1-2.

Note These are maximum possible capacities. Not all maximums can be equipped simultaneously. Some features may require additional licenses.

Table 1-2 CIX40-R1 Cabinet Configurations and Capacities (CHSU40A with R5.1 or later SW)

Analog CO Lines	Digital Telephones	IP Channels	Equipment
3	8	0	Cabinet (CHSU40A)
6	16	0	Cabinet with: GCDU2A
7	8	0	Cabinet with: GCOCIH1A
10	16	0	Cabinet with: GCDU2A, GCOCIH1A
3	8	8, 16	Cabinet with: GIPH, GIPU8 or MIPU16
6	16	8, 16	Cabinet with: GCDU2A and GIPH, GIPU8 or MIPU16
Voice Mail: GVPH1A can be installed in all of the above configurations. Includes 4 default VM Ports, can expand to 6 or 8 VM Ports with the LIC2-GVPH license			
Analog FX/Modem Ports: One analog station port is standard on the Base cabinet; a second can be added by installing a GSTU1A			

CIX40 R5.20 Software

The system is pre-programmed with a limited database that allows the system function from initial power-up for easy, cost effective installation.

CIX40 Software Backup and Restore Capability

- CIX40 R4 SW will not run on R2 or R3 HW
- A Release 4 CIX40 system can be upgraded to Release 5.20 software. The R4 SW Database is backed up, then restored on the upgraded, R5.20 SW processor.
- A database can only be restored on the same release HW
  - A database backed-up on a R1 HW system cannot be restored to a R2HW or R3 HW system.
  - A database backed-up on a R2 HW or R3 HW system cannot be restored to a R1 HW system.
- R5.20 SW database cannot be restored to a R4 SW system

System software and customer database backup and restore. Backup and restore is only possible with same-type hardware. Refer to the Table below.

Backup From:		**Restore To:**			
		R4 SW		**R5.20 SW**	
		R1 HW	**R2 HW**	**R1 HW**	**R2 / R3 HW**
R4 SW	**R1 HW**	Allowed		Allowed	No
R5.20 SW	**R1 HW**			Allowed	No
	R2 / R3 HW			No	Allowed

CIX40 System Licenses

The analog CO lines, digital telephones, standard telephones, four voice mail ports, DTMF circuits, attendant consoles, ACD VA ports and BSIS serial ports do not require a license for operation on the CIX40. IP Ports on the optional GIPH and MIPU cards, and more than four (up to eight) voice mail require licensing on the GCTU2A processor as follows:

- Each Toshiba IPT2000 anf IP5000 series telephone and SIP Telephone requires one LIC-CIX-IP_Port license.
- Each Strata Net IP channel requires a LIC-CIX-STRN-CH license.
- Toshiba SoftIPTs require a LIC-SOFTIPT license and one LIC-CIX-IP_Port license for each SoftIPT.
- Two additional voice mail ports are provided by each LIC-2 GVPH license, up to the system maximum of eight.
- Licenses are required on the Media Application Server (MAS), Stratagy® SES, and customer provided PCs for applications such as ACD, Net Phone, TASKE®, Oaisys®, Feature Flex®, VCS™, Insight, etc.

CIX40 Cabinet Specifications

Table 1-3, below, lists the CIX40 cabinet specifications.

Table 1-3 CIX40 Cabinet Specifications

Cabinet	Weight	Height	Width	Depth
Cabinet (CHSU40A, CHSU40A2 and CHSU40A3) The system cabinet contains the GMAU2/3/4 and GMAS2/3/4 motherboards	6.6 lbs. (3 kg)	17.7 in. (45 cm)	12.2 in. (31 cm)	3.3 in. (8.5 cm)

Safety Registration

- UL60950-1 (USA)
- CSA22.2 NO.60950-1-3 (Canada)

CIX40 CHSU40A3 FCC/ACTA Registration Number

- ACTA/FCC Part 68 Registration for Multifunction Code (MF): CJ6MF03BDTCHS403

Note For earlier systems refer to version C2 of this manual, available on theToshiba FYI web site.

Telephone Compatibility

The Strata CIX40 supports all current Toshiba 2000-series, 3000-series, 3200-series, and DP5000-series digital telephones, IP telephones, Add-on Modules, DSS Consoles, and CIX Attendant Consoles.

Generic single-line telephones (2500-sets) are compatible. The Strata CIX40 does not support analog electronic telephones (6500-series, 6000-series, etc.).

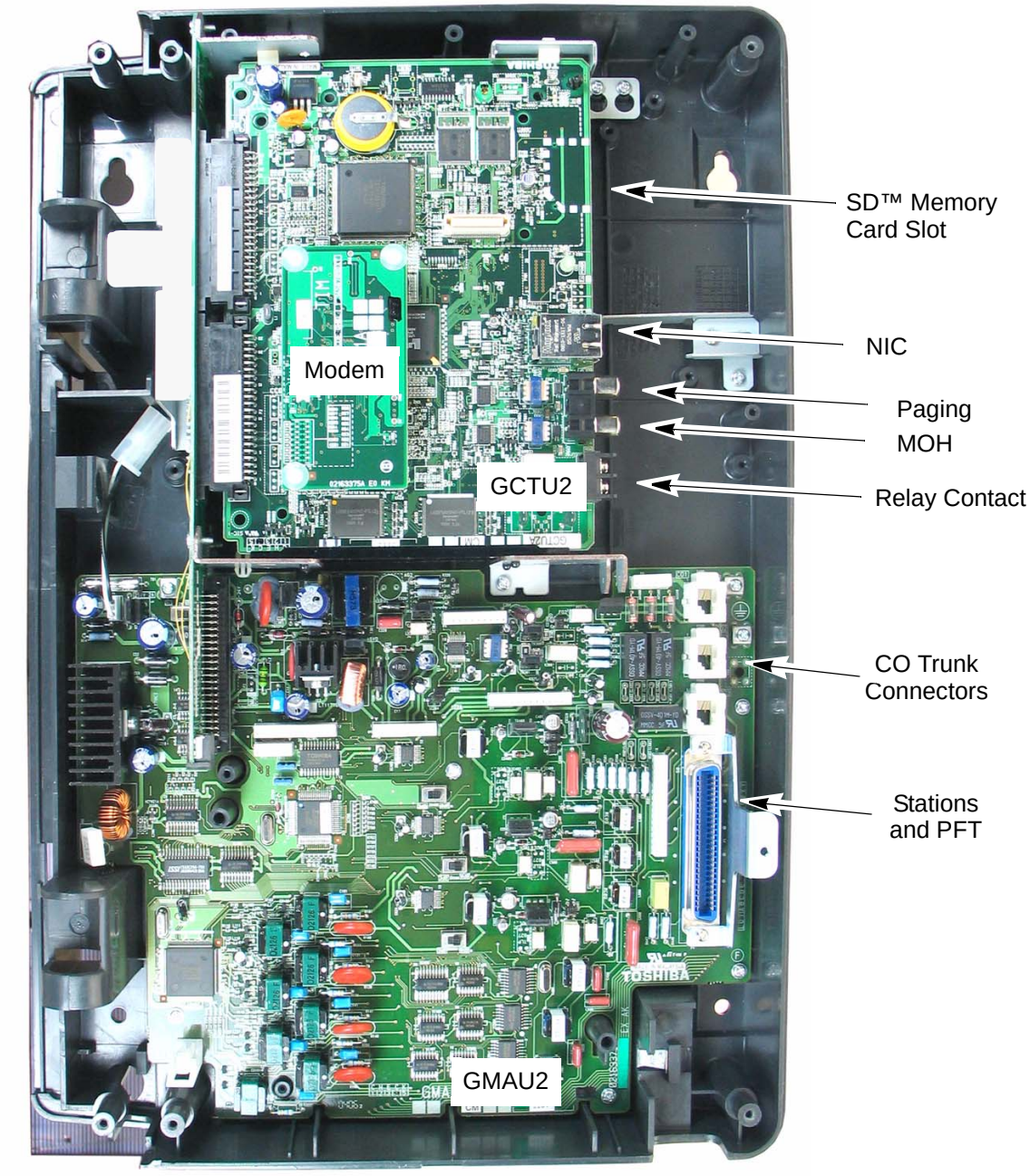
DKT stations connected to the CIX40 support Handset Off-hook Call Announce (OCA) but not Speaker OCA.

IPT stations connected to the CIX40 support both Handset Off-hook Call Announce (OCA) and Speaker OCA.

Note An IPT does not require a BVSU to receive Speaker OCA (S-OCA) but does require an additional IP channel on the GIPH, GIPU8, MIPU16, or MIPU24 IP interface card. If an IPT is enabled to receive S-OCA a second IP channel will be reserved automatically for this IPT. If no IP channel is available when enabling S-OCA eManager will receive an error message. Only one IP End Point license is required for an IPT to receive speaker OCA even though two IP channels are needed. Use PROG 204-06 to select Speaker OCA as the type to receive. Use PROG 103-38 to enable a COS to receive OCA. Use PROG 200-04 to put the telephone in a COS that is enabled to receive OCA.

Toshiba IP Telephones, Soft IPT and SIP phones are supported by the CIX40.

The figure below displays the interior layout of the CIX40. The figures shows a GMAU2, this is a CIX40-with R1 hardware. A CIX40 with R2 hardware would have a GMAU3 instead of the GMAU2. A CIX40 with R3 hardware would have a GMAU4 instead of the GMAU2 shown.



Shown with GMAU2 (R1 HW)
For R2 HW systems a GMAU3 is used.
For R3 HW systems a GMAU4 is used.

Figure 1-2 Basic CIX40 Interior

Inspection

1. When the system is received, examine all packages carefully and note any visible damage. If any damage is found, do not open the packages. Contact the delivery carrier immediately and make the proper claims.
2. After unpacking (and before installing), check the system against the packing list and inspect all equipment for damage. If equipment is missing or damaged, contact your supplier immediately.
3. Be sure to retain original packaging materials for re-use when storing or transporting system hardware.

Packaging and Storage

CAUTION! When handling (installing, removing, examining) PCBs, do not touch the back (soldered) side or edge connector. Always hold the PCB by its edges.

- When packaging and storing the system, remove PCBs from the system cabinet. PCBs should be packaged in their original antistatic bags for protection against electrostatic discharge. Be sure to package equipment in its original shipping containers.

Site Requirements

This section defines the installation site requirements necessary to ensure a proper operating environment for the CIX40. Also included are grounding requirements.

Input Power

The system requires an input power source of 115VAC ± 10VAC, 50/60 Hz, 1.5 amps. The AC outlet is recommended to be dedicated and unswitched. (See "AC Power and Grounding Requirements" on page 1-10.)

A dedicated AC power circuit eliminates interference from branch circuit motor noise or the like, and to prevent accidental power-off. To avoid accidental power turn-off, Toshiba recommends that you do *not* use an On/Off wall switch on this dedicated AC circuit.

For the Strata CIX40, a reserve power source (HPFB-6) may be connected to the system to serve as a power failure backup (See Step 1 on page 1-43).

Clearance and Location

The minimum clearance requirements for the Strata CIX40 Base cabinet is shown in Figure 1-3. Refer to Figure 1-7 on page 1-13 for CIX40 cabinet mounting instructions.

Consider the following conditions when selecting a location for the cabinet:

The location must be:

- Dry and clean
- Well ventilated
- Well illuminated
- Easily accessible

The location must not be:

- Subject to extreme heat or cold
- Subject to corrosive fumes, dust, or other airborne contaminants
- Subject to excessive vibration
- Next to television, radio, office automation, or high frequency equipment

If reserve battery power (HPFB-6) is to be installed for the Strata CIX40, the batteries will require a well-ventilated location close to the CIX40 system cabinet.

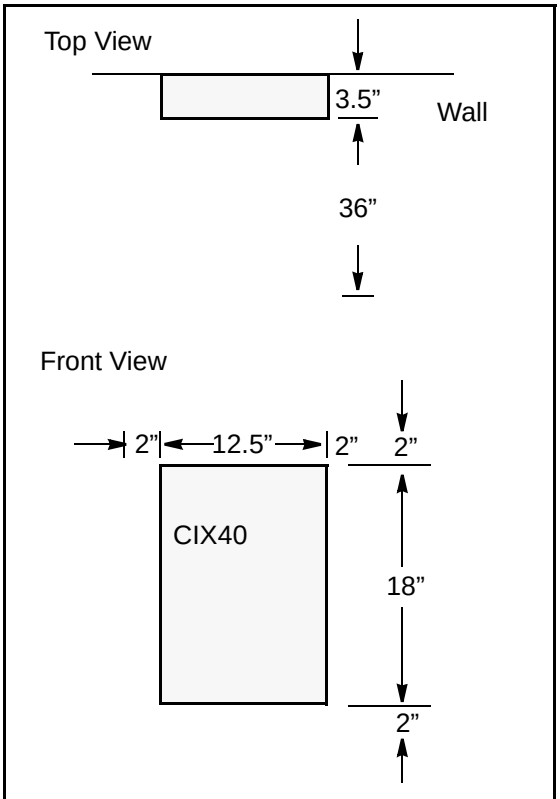


Figure 1-3 CIX40 Cabinet Clearance Requirements

Table 1-4 provides a summary of the electrical and environmental characteristics.

Table 1-4 Summary of Electrical/Environmental Characteristics

CIX40 Primary Power (Power Supply Specification)		
Specification	R1 and R2 Hardware	R3 Hardware
Input AC AC frequency AC input current	105~125VAC 50/60 Hz 1.5A maximum (100 VAC)	105~125VAC 50/60 Hz 1.7A maximum (100 VAC)

Environmental Specifications	
Operating temperature Operating humidity Storage temperature	32~104° F (0 ~40° C) 20~80% relative humidity without condensation -4~140° F (-20~60° C)

Power		
Specification	R1 and R2 Hardware	R3 Hardware
Input DC	15V use the factory-shipped AC adapter (SQ60W15P-00)	-27V use the factory-shipped AC adapter (ACADP40-1A)

Standard Telephone Ring Circuit (GMAU2, GMAU3 and GMAU4, and GSTU1)	
Ring Voltage	180V p-p square wave
Ringing capability	1 REN, 1 circuit - one telephone per circuit

AC Power and Grounding Requirements

The CIX40 requires an earth ground connection for proper operation. The ground for the CIX40 must originate at the building's main power distribution panel and have a solid connection to earth ground. Use a an insulated copper wire to connect the TB3 terminal on the GMAU to earth ground. This wire should be 10 AWG or larger. The total resistance from TB3 to the ground point must not exceed one ohm. Connect the ground wire to the common ground point or ground rod, usually located at the utility entrance of the building. (See Figure 1-4.) Check local codes.

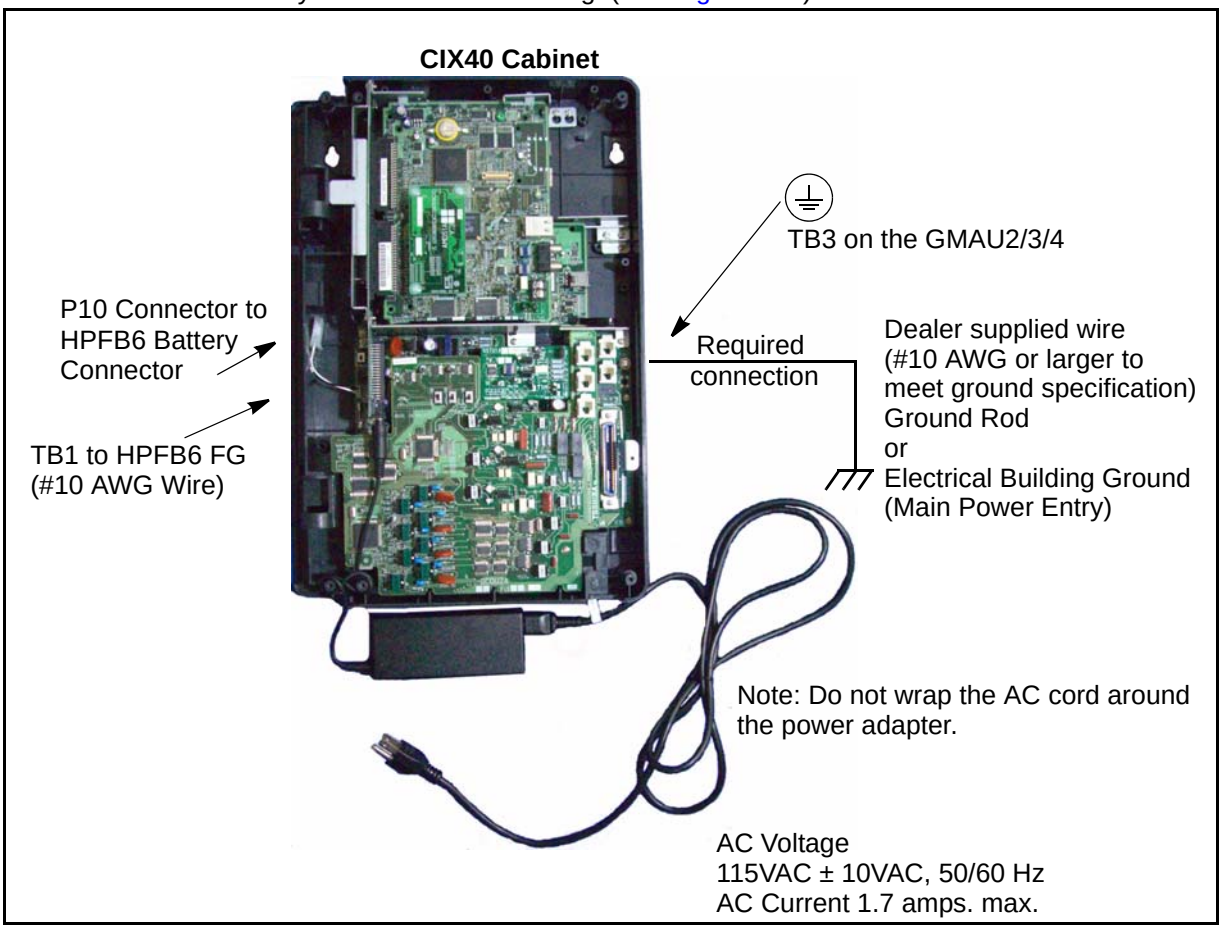


Figure 1-4 Ground and AC Power Cord

Important! On CHSU40A/CHSU40A2 systems: Do not wrap the power cord around the AC adaptor. Excess cord should be gathered and secured with the supplied strap. Wrapping the cord around the adaptor, or bundling the output cord with the AC cord can cause noise on voice mail messages or other noise.

CAUTION! Lack of proper ground may cause improper operation and, in extreme cases, system failure.

WARNING! Failure to provide a proper ground may be a safety hazard to service personnel or lead to confusing trouble symptoms, such as noise on the talk path including GVPH1 greetings and messages. In extreme cases, system failure may result because the system is not properly protected from lightning or power transients.

Ground Wire Connection

The ground wire must have a customer supplied closed or eye type lug for connection to the GMAU terminal TB3. Refer to Figure 1-5. The connector lug must be crimped onto the wire. The connection must be mechanical. The connector may also be soldered if desired. The connector must not be more than 0.25 in. (5.5 mm) wide. Ground wire lugs for the GMAU2 must accept the M3 screw (0.125 in. or 3 mm). Ground wire lugs for the GMAU3/4 must accept the M4 screw (0.157 in. or 4 mm).

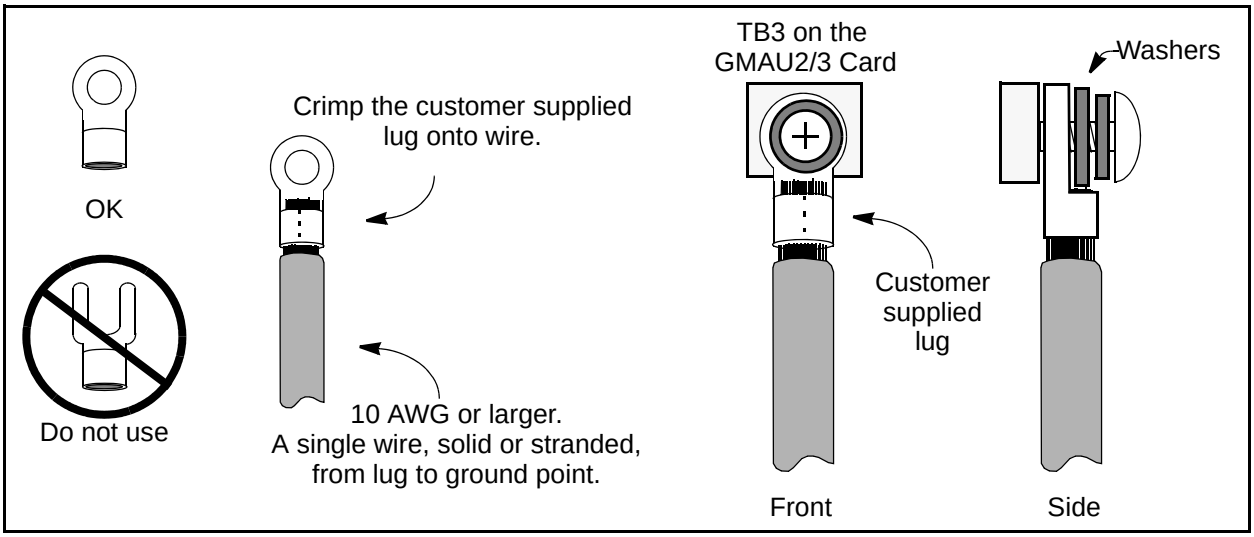


Figure 1-5 Ground Wire Connection

Ground Test

Test the “ground wire” for continuity by either measuring the resistance between the TB3 terminal (earth ground) on the GMAU and the common point ground on (or near) the MDF, or the utility entrance ground (maximum: 1 ohm), or by using a commercially available earth ground indicator.

Table 1-5 Ground Wiring Summary

Grounding Requirement	From	To	Description
System connects to earth ground	Earth ground	TB3 on GMAU2, 3 or 4	Less than 1 ohm
FG of HPFB-6 connect to GMAU2, 3 or 4	HPFB-6 FG Screw	TB1 on GMAU2, 3 or 4	

Installing the CIX40 Cabinet

Check the items shipped.

- CHSU40A (R1 HW), CHSU40A2 (R2 HW), or CHSU40A3 (R3 HW) cabinet
- GMAU2 (R1 HW), GMAU3 (R2 HW) or GMAU4 (R3 HW) motherboard and GCTU2 processor PCB
- AC adapter
- Tie wrap for cable clamp
- Tie wrap for AC adapter
- Velcro strap for AC adapter cord

Step 1: Mount the Cabinet on the Wall

The Base cabinet is designed to be mounted on a wall or other vertical surface.

WARNING! To prevent electrical shock, make sure the power supply switch is turned Off.

❱ To mount the CIX40 Cabinet

1. Make sure the location for the CIX40 meets the minimum clearance requirements specified in Figure 1-3 on page 1-8.
2. Loosen the screws on the front cover and the side cover of the cabinet, remove the covers (see Figure 1-6).

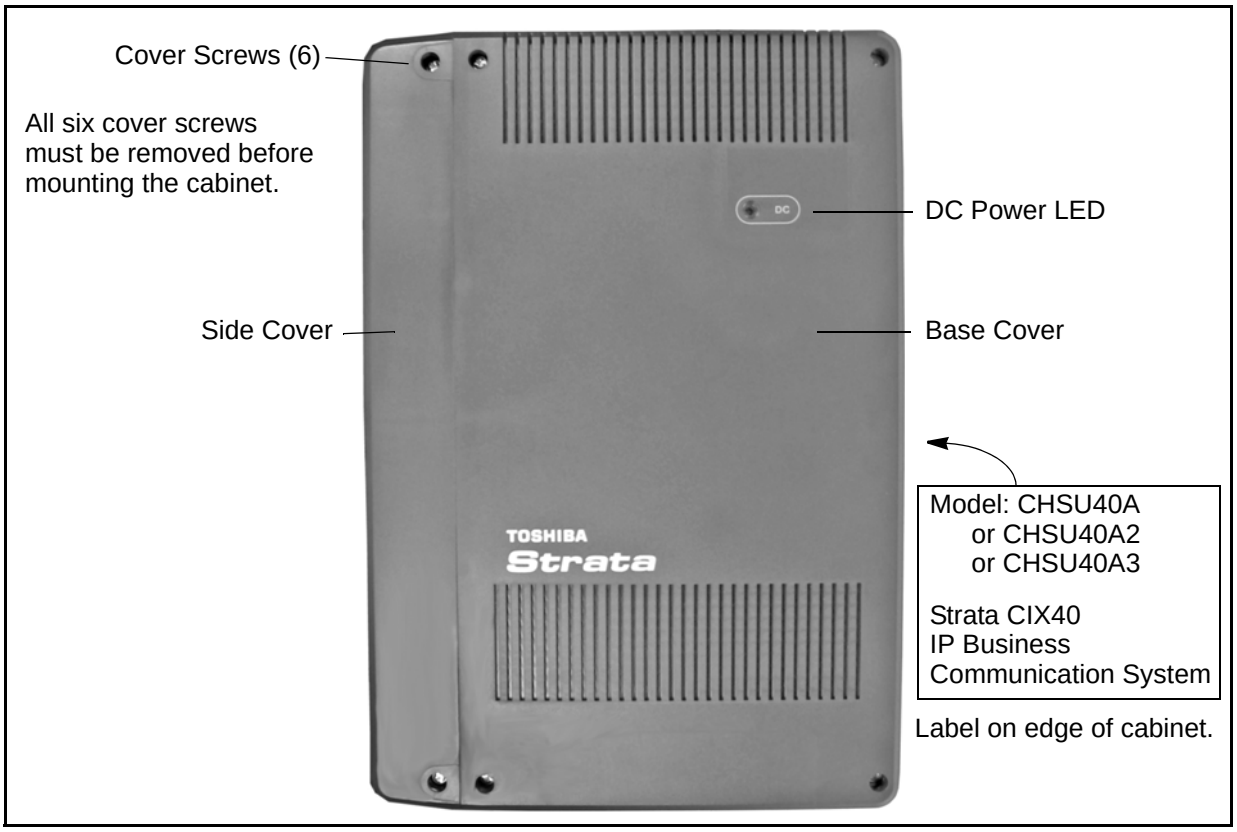


Figure 1-6 CIX40 Cabinet Exterior

3. Place the cabinet base on the desired location on the mounting surface and mark the location of the four screw holes. See Figures 1-7 and 1-8.
4. Using a hard board between the cabinet and the wall, secure the hard board to the wall first, making certain that screws are aligned with studs. See Figure 1-8.
5. Drill holes on these marks and secure screws approximately two thirds of the way into the top two holes on the mounting surface.
6. Hang the unit from the top two screws and then secure the top screws completely into the mounting surface.
7. Finish securing the unit to the mounting surface by completely screwing the bottom two screws into the wall.

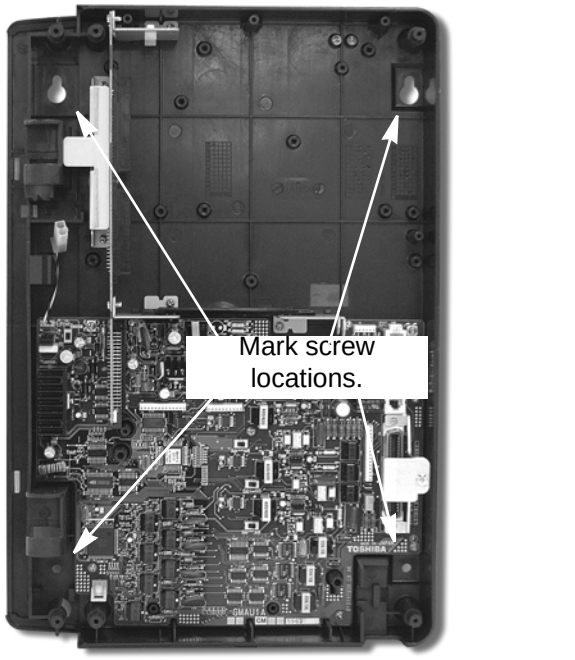


Figure 1-7 CIX40 Interior

Note Check local building and electrical codes concerning the hard board or plywood mounting board requirements.

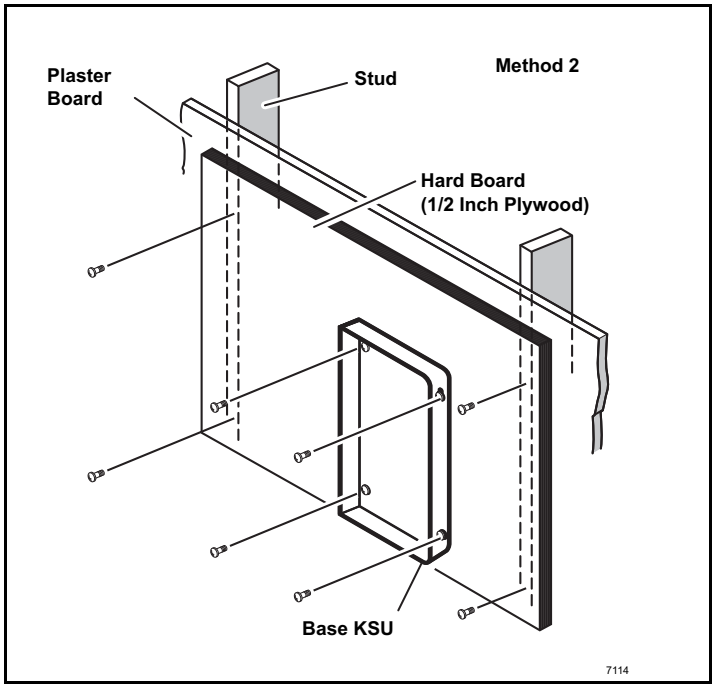


Figure 1-8 CIX40 Cabinet Wall Mounting

8. Ground system according to "AC Power and Grounding Requirements" on page 1-10.

Step 1: Install Power Wiring

Important! Ensure that you have the correct power adapter for the cabinet being installed.
R1 and R2 HW (GMAU2/3) use factory-shipped AC adapter SQ60W15P-00
R3 HW (GMAU4) use factory-shipped AC adapter ACADP40-1A

1. Refer to Figure 1-9 for the following steps. Loosen the screw on the Amphenol clamp and remove the clamp. Plug in the 25-pair Amphenol connector and replace the clamp to hold the Amphenol connector in place.
2. Connect all other PCB wiring (e.g., modular CO line cords, LAN cable, etc.). Slide the shorter tie-wrap through the holder. Then fasten wiring to the unit with the tie wrap that comes with the cabinet.
3. Connect the end of the AC adapter cable to the GMAS PCB as shown in Figures 1-9 and 1-4.
4. Connect the other end of the GCTU2 (100Base TX) LAN cable to the LAN connected to a LAN switch or the eManager PC.
5. Plug the AC adapter into a power outlet.
6. Put the On/Standby switch on the GMAU into the “On” position. The DC LED should light green. The CIX40 is now ready to program.

WARNING! Do not smoke near batteries. Avoid creating any electrical sparks near batteries.

CAUTION! On CHSU40A/CHSU40A2 systems: Do not wrap the power cord around the AC adaptor. Excess cord should be gathered and secured with the supplied strap. The cord bundle may be secured to the side of the adapter.

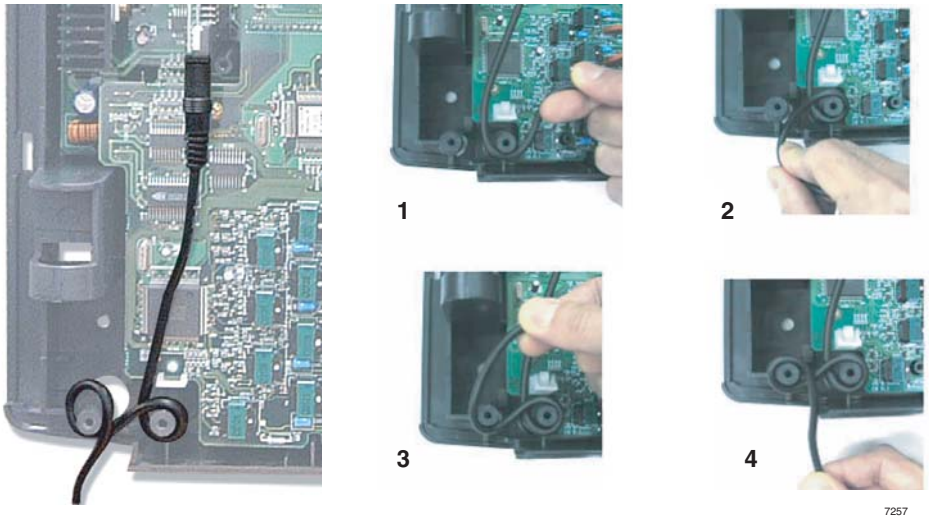


Figure 1-9 AC Adapter Wiring Procedure

CIX40 Cabinet Slots

The CIX40 Cabinet has a dedicated slot for the GCTU2 system processor card. Dedicated slots for the optional GVPH1 voice mail PCB and the IP interface PCBs (GIPH, GIPU8, MIPU16, or MIPU24) or the GCOCIH1 four CO line PCB are under the GCTU2. All other CIX40 optional interface cards plug onto the Processor or the Motherboard. The CIX40 does not support CIX100/200/670 circuit cards, except the BSIS and MIPU cards.

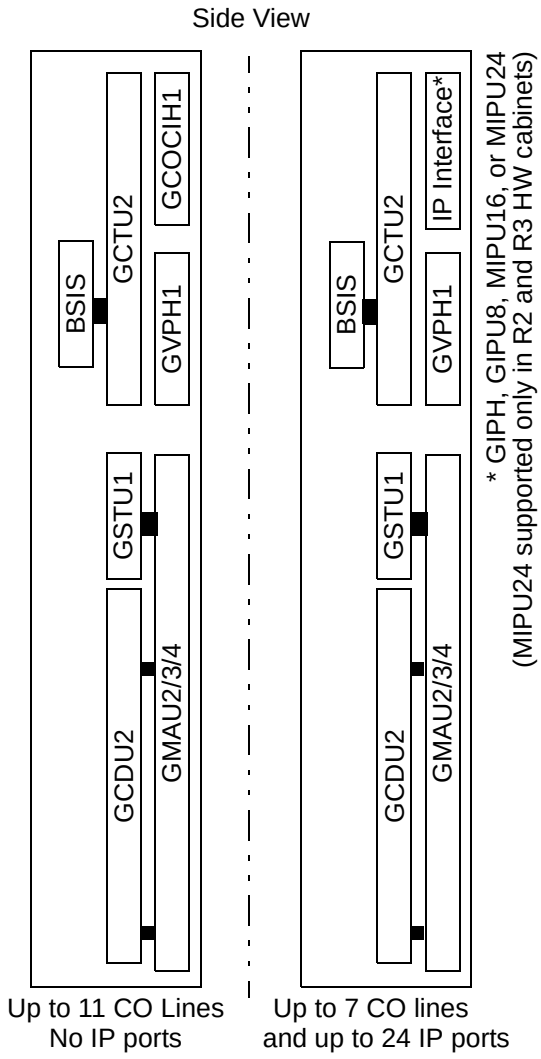
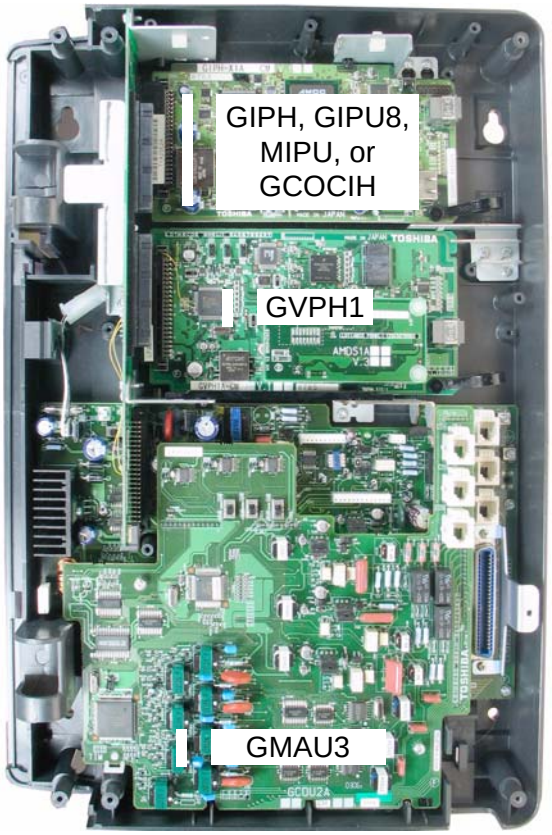


Figure 1-10 CIX40 Interior



GCTU2 removed for clarity.

Note: This photo shows the GIPH card installed. The GCOCIH card can be installed in this slot.

IP, CO Line Card Stopper
Refer Figure 1-18 on Page 1-33.

Figure 1-11 GVPH1, GCOCIH, and GIPH1 (IP Interface) Locations

Printed Circuit Boards

This section contains detailed descriptions of each printed circuit board (PCB) available for the Strata CIX40 system.

PCB Descriptions

The tables below summarize the CIX40 cabinet PCBs (see Table 1-6 and Figure 1-11.) A detailed description follows.

Table 1-6 CIX40 Cabinet Circuit Cards

Part	Title	Description
CHSU40A3	R3 HW Cabinet	The GMAU4 motherboard supports 4 CO lines with CLID, 8 digital telephones, 1 standard telephone.
CHSU40A2	R2 HW Cabinet	The GMAU3 motherboard supports 4 CO lines with CLID, 8 digital telephones, 1 standard telephone.
CHSU40A	R1 HW Cabinet	The GMAU2 motherboard supports 3 CO lines with CLID, 8 digital telephones, 1 standard telephone.
GMAS4	Sub-motherboard for R3 HW	The GCTU2, GVPH1, GIPH, GIPU8, MIPU, GCOCIH1, and AC power adaptor plug into dedicated slots on the GMAS4 sub-motherboard.
GMAS3	Sub-motherboard for R2 HW	The GCTU2, GVPH1, GIPH, GIPU8, MIPU, GCOCIH1, and AC power adaptor plug into dedicated slots on the GMAS3 sub-motherboard.
GMAS2	Sub-motherboard (R1 HW)	The GCTU2, GVPH1, GIPH, GIPU8, MIPU, GCOCIH1, and AC power adaptor plug into dedicated slots on the GMAS2 sub-motherboard.
GCTU2	Processor (with built-in modem and NIC)	Shipped in a separate box
GVPH1	Voice mail	(Optional) Voice Mail with modem and 4, 6 or 8 ports[1]
GCDU2	CO, CLID, DKT Interface	(Optional) Supports 3 CO lines with CLID, 8 Digital Telephones. The GCDU2 plugs onto the motherboard.
GSTU1	Standard Telephone	(Optional) Provides 1 standard telephone port
GIPH	8 Channel IP Interface	(Optional) 8-Channel IP interface with NIC
GIPU8	8 Channel IP Interface	(Optional) 8-Channel IP interface with NIC
MIPU16	16 Channel IP Interface	(Optional) 16-Channel IP interface with NIC
MIPU24[2]	24 Channel IP Interface	(Optional) 24-Channel IP interface with NIC
GCOCIH1	4 CO Line Circuits with CLID	(Optional) Provides 4 CO line circuits with CLID
BSIS	RS232C	(Optional) RS232-C. Provides 4 serial I/O ports
HPFB6	External Battery	(Optional) Provides backup power

1. R5.10 or later software is required to support six or eight ports.
2. R2 and R3 Cabinets only

Table 1-7 Circuit Card Compatibility

Card Type	Card	R4 Software	R5.20 Software		
		CIX40 R1 HW	CIX40 R1 HW	CIX40 R2 HW	CIX40 R3 HW
Processor	GCTU2	X	X	X	X
Mother sub-assembly	GMAS2	X	X	—	—
Mother sub-assembly	GMAS3	—	—	X	—
Mother sub-assembly	GMAS4	—	—	—	X
Peripheral (Digital telephones, CO Lines, CLID, Analog telephones)	GMAU2A	X	X	—	—
	GMAU3A	—	—	X	—
	GMAU4A	—	—	—	X
	GCDU2A	X	X	X	X
	GSTU1A	X	X	X	X
	GCOCIH1A	—	X	X	X
Voice mail	GVPH1 (V1 and V2)	X[1]	X[2]	X[2]	X[2]
IP Telephony	GIPH-X1A	X	X	X	X
	GIPU8	—	X	X	X
	MIPU16	—	X	X	X
	MIPU24	—	—	X	X
Serial Interface Port	BSIS1A	X	X	X	X
Reserve Power	HPFB6	X	X	X	X

1. Four ports only
2. Four, six, or eight ports (port six through eight require additional LIC-2 GVPH licenses)

CIX40 Processor

Each CIX40 system operates with one processor card, the GCTU2, installed in a dedicated slot. The CIX40 processor does not require any licenses for standard telephones and trunks. This includes items (line/station ports, DTMF receivers, ABR circuits, etc.). More than four Voice Mail ports, Strata Net IP and all IP endpoints on IP Interface card (GIPH, GIPU8, or MIPU) require additional licenses. Refer to "CIX40 System Licenses" on page 1-4.

The processor card uses a high-speed processor, Dynamic Random Access Memory (DRAM)

working memory, Static Random Access Memory (SRAM) with lithium battery for memory back-up, and flash program memory.

A Secure Digital (SD) card is used for data backup.

The processor supports the following:

- 16 DTMF receivers.
- 16 Busy Tone (BT) detector circuits for Auto Busy Redial (ABR).
- 64 built-in conference circuits.

GCTU2 Processor Interfaces

Administration Interface

The processor card has both a built-in modem (AMDS card) and a Network Interface Connector. Either can be used to connect to CIX eManager R5.10-A07 or later, for local or remote maintenance and administration.

Memory Protection Battery

If commercial AC power is lost, or if a system is moved or stored without power, the processor has an on-board battery that protects data and the customer's programmed configuration. This information will be maintained in a powerless system for at least six years.

Relay Control Interface

An on-board terminal strip provides an interface to a normally open relay contact which can be programmed to control a Night Bell, door lock or to mute the Background Music (BGM) during an external page.

External Page Interface

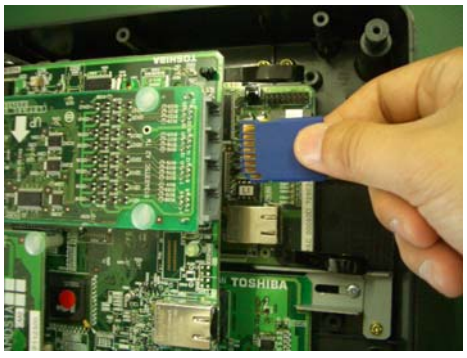
A 600 ohm RCA jack is built into the processor to interface with a Toshiba External Amplified Speaker (HESB or BESCB) or a customer-supplied page amplifier and speaker(s) for external paging, night ring over external page, and external BGM applications.

Music-on-hold/Background Music Interface

One 600-ohm RCA jack is provided on the processor to interface with Music-on-Hold (MOH) and/or BGM sources. With the CIX40 you can have up to three MOH/BGM source interfaces. The CIX40 Standard Telephone interfaces can be used to provide up to two MOH/BGM input sources in addition to the processor MOH/BGM interface.

SecureDigital Memory

The processor has an on-board SecureDigital™ memory card slot. A SecureDigital (SD) flash memory card can be inserted into the slot to backup and restore customer program data. It also makes it easy to upload operating system data for software upgrades and is used to store maintenance log files. Notice that the SD slot may be difficult to see. Insert the SD memory chip with the gold contacts to the front as shown in Figure 1-12.



Insert SD Memory Chip

SD Memory Chip In Place

Figure 1-12 SD Memory Chip Insertion

CIX40 Processor Optional Subassembly

Optional BSIS (Serial Port Interface) subassembly – can be attached to the GCTU2 processor to provide up to four RS-232 interface ports; one port for an SMDR interface to Call Accounting devices, one port for SMDI to external voice mail devices, and two other applications.

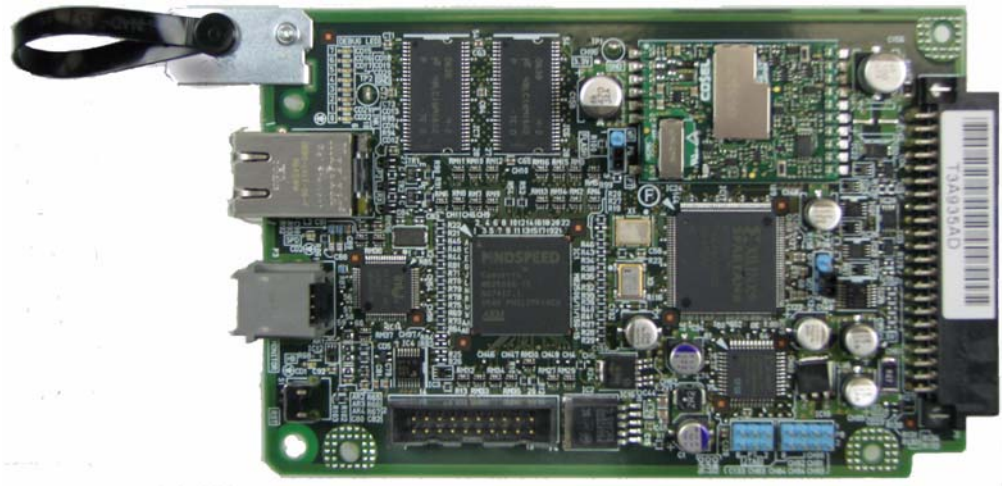
Note The GVPH1 does not require a BSIS SMDI port.

IP Interface Cards

The features of the CIX40 system IP interface cards are shown in the table below.

Feature	GIPH	GIPU8	MIPU16	MIPU24
Collect log files remotely	NO	YES	YES	YES
Restriction by tail length of Echo Canceller	YES	NO	NO	NO
Quality of Service (QoS) threshold alarm	NO	YES	YES	YES
SIP Trunk Support	NO	YES	YES	YES
IP Mobility Support	YES[1]	YES[1]	YES[1]	YES[1]
Connect between G.711 A-law and G.711 Mu-law codecs	NO	YES	YES	YES
RTP ports used can be user modified	NO	YES	YES	YES
Dual filter echo canceller	NO	YES	YES	YES

1. R5.0 or later software required.



GIPU8 Circuit Card

GCOCIH

The GCOCIH1 assembly provides four loop-start CO line circuits. Refer to Figure 1-19. The GCOCIH1 card plugs into the GMAS sub-mother board. This is the slot adjacent to the voice mail card. When the GCOCIH1 card is installed an IP interface card cannot be installed in the system.

GCOCIH1 assembly specifications:

- Loop-start CO Line Circuits
- DTMF dialing only
- Caller ID Type: ANSI Type 1
- Modem Protocol: Bellcore 202, ITU-T V.23

Table 1-8 GCOCIH Controls and Switches

Control/Connector	Type of Component	Description
SWxxx	2-position slide switches	3dB Pad switch per circuit
Pxxx	connector	Interface to CCOCIS
P3	Connector	Interface to GMAS
Cct 1/2	RJ connector on GCOCIH	CO LIne circuits 1 and 2
Cct 3/4	RJ connector on CCOCIS	CO LIne circuits 3 and 4

When the GIPH1, GIPU8, or an MIPU card is installed, a GCOCIH1 (four circuit CO Line interface) cannot be installed.

GCDU2 (DKT and Loop Start Interface)

The GCDU2 PCB adds an additional 3 CO lines, 3 Caller ID units, and 8 digital telephone circuits with a single PCB. It attaches to the GMAU4, GMAU3, or GMAU2 motherboard. With the GCDU2 installed, the CIX40 supports up to 16 digital telephones (DKTs), 7 CO lines with Caller ID (GMAU3/4) or 6 CO lines with Caller ID (GMAU2). The GCDU2 does not require a license.

GVPH

The GVPH is a four, six or eight port voice mail system on a card. The first four port licenses are included in the CIX40 system. Two additional two-port licenses (LIC-2 GVPH) can be added. Earlier versions, the GVPH-V1 card have status indicators for only the first four ports. Later versions, the GVPH-V2 have eight indicators. The two circuit boards are otherwise identical. They both support up to eight voice mail ports in systems running R5.10 and later CIX software.

Note Six and eight port GVPH operation is only supported by CIX40 Release 5.10 and later software.

There are two versions of the GVPH, both versions install in the same manner. All jumpers, selections and indicators are the same.

GSTU1

The GSTU1 provides one additional standard telephone interface. The GSTU1 does not require a license. It plugs onto the GMAU PCB.

BSIS

The BSIS provides four RS-232 serial ports, it plugs onto the GCTU2 processor PCB.

PCB Installation

Overview Instructions

The following is an overview for installing the Printed Circuit Boards (PCBs) into the Strata CIX40. After reading this section, proceed to the step-by-step instructions for each PCB.

CAUTION! You must remove power from the CIX40 system before installing or removing printed circuit cards.

1. Apply proper settings on the GMAU3 (motherboard).
2. If applicable, set SW6 battery jumper to ON and install the GVPH1 voice mail card (Figures 1-16).
3. If applicable, install, GIPU8, GIPH, MIPU or GCOCIH card.
4. Set P601 battery jumper to ON and install the GCTU2 (processor and Figure 1-22 on Page 1-38).
5. If applicable, install the GCDU2 (3 CO, 3 CLID and 8 DKT circuits Figure 1-23).
6. If applicable, install GSTU1 (standard telephone interface Figure 1-25).
7. If applicable, install the BSIS for SMDR (Figure 1-22).
8. If applicable, install HPFB-6 battery/charger (Figure 1-28).
9. Connect wiring (Table 1-22).
10. Connect AC Adaptor to P2 of the CIX40 sub-motherboard (GMAS, Figures 1-9) and plug the AC Adaptor into AC power.
11. Turn the System ON by sliding the SW1 ON/OFF switch down. The ON/OFF LED located by the GMAU3 label, STANDBY will light.

Detailed PCB Installation

This section includes the detailed installation steps for the CIX40 system PCBs.

Step 1: Set Switches on the GMAU2/GMAU3/GMAU4 (Motherboard)

1. The GMAU2 (shown in Figure 1-13) supports up to 3 CO lines with Caller ID (CLID). Each circuit has an associated pad switch. Set each circuit for 0dB or 3 dB pad.
2. Set SW1 to Standby (Power Off).

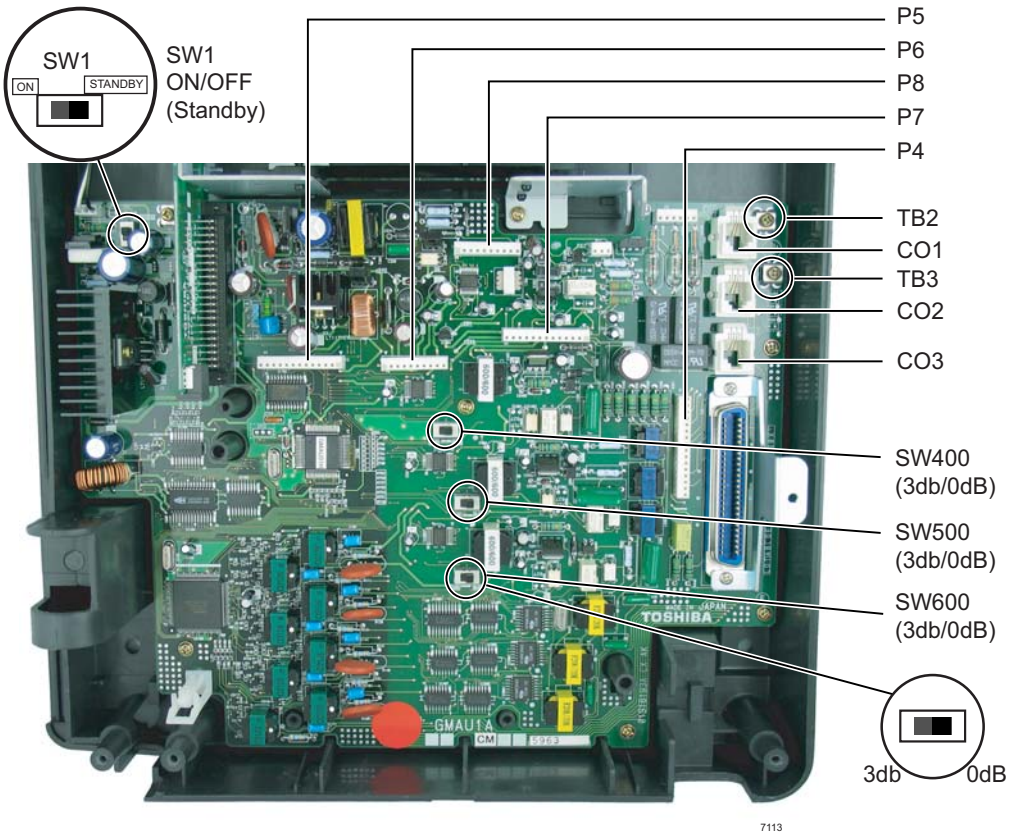


Figure 1-13 GMAU2 (R1 HW) PCB

Table 1-9 GMAU2 Controls, Switches and Indicators

Control/Indicator/ Connector	Type of Component	Description
SW1	2-position slide switch	Power Switch: [STANDBY] = no DC power supply. [ON] = DC voltage supplied. [ON] activates the reserve power from HPFB-6 battery pack.
SW400	2-position slide switch	3dB Pad switch
SW500		
SW600		
CD6	LED	Power indicator; Lit when SW1 is [ON], turned on and AC power or Reserve power is present. Dark when SW1 is [STANDBY], turned off.
TB1	Terminal with screw	Grounding for HPFB-6 external battery
TB3	Terminal with screw	Grounding for CIX40 system, connect to earth ground
P1	50-pin Amphenol connector	DKT, SLT and Power Failure Transfer interface
P3	44-pin DIN connector	GMAS (sub-motherboard) interface
P4	16-pin female connector	GCDU2 DKT and loop start interface
P5	13-pin female connector	
P6	10-pin female connector	
P7	13-pin female connector	GSTU1 standard telephone interface
P8	10-pin female connector	
P9	6-pin female connector	GCDU2 interface
P10	3-pin connector	HPFB-6 external battery interface
P11	3-pin female connector	GSTU1 standard telephone interface
P400	Modular connector	Interface for CO Line circuit (CO1/Cct1)
P500		Interface for CO Line circuit (CO2/Cct2)
P600		Interface for CO Line circuit (CO3/Cct3)
F1	2.0A Fuse	-24VDC Over current protection

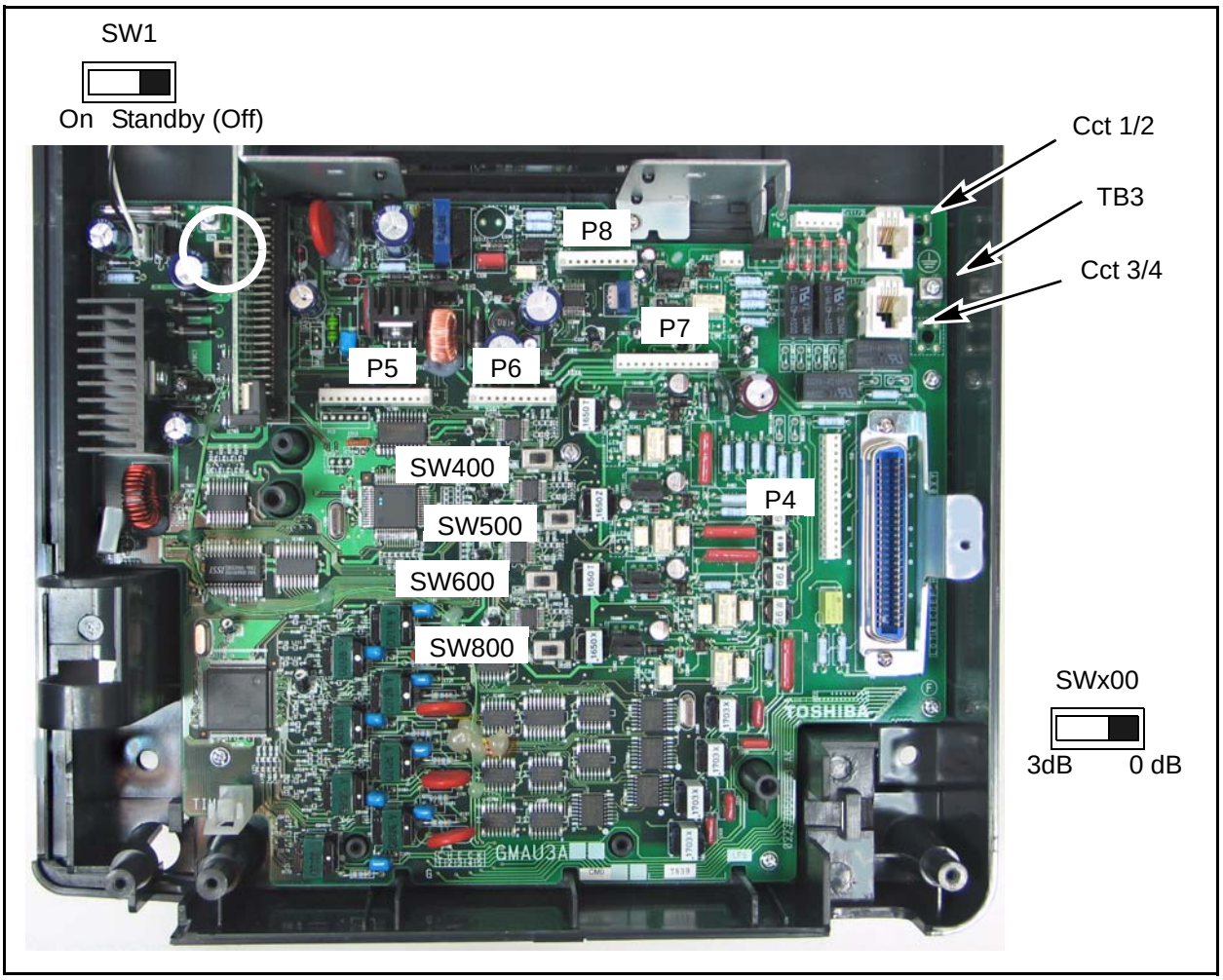


Figure 1-14 GMAU3 (R2 HW)

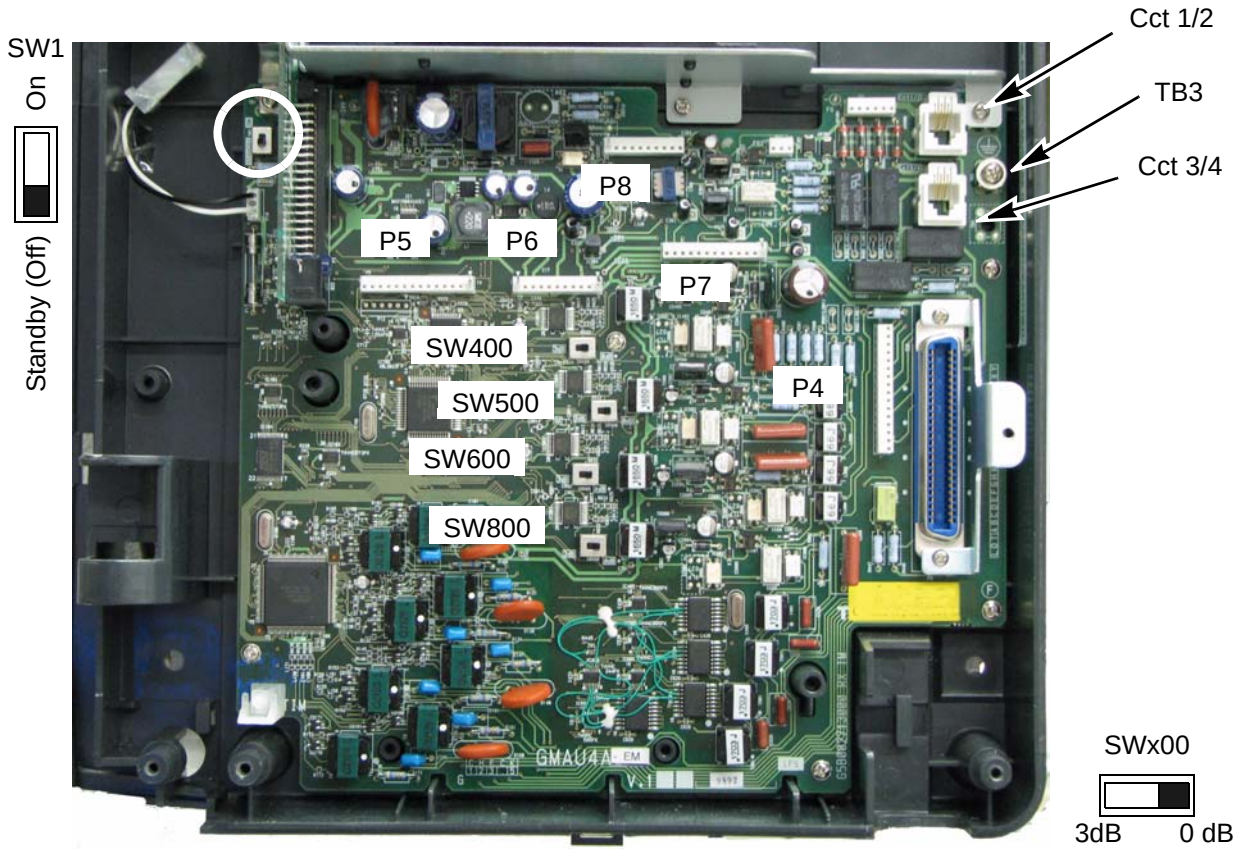


Figure 1-15 GMUA4 (R3 HW)

Table 1-10 GMAU3 and GMAU4 Controls, Switches and Indicators

Control/Indicator/ Connector	Type of Component	Description
SW1	2-position slide switch	Power Switch: [STANDBY] = no DC power supply. [ON] = DC voltage supplied. [ON] activates the reserve power from HPFB-6 battery pack.
SWxxx	2-position slide switches	3dB Pad switch per circuit
CD6	LED	Power indicator; Lit when SW1 is [ON], turned on and AC power or Reserve power is present. Dark when SW1 is [STANDBY], turned off.
TB1	Terminal with screw	Grounding for HPFB-6 external battery
TB3	Terminal with screw	Grounding for CIX40 system, connect to earth ground

Table 1-10 GMAU3 and GMAU4 Controls, Switches and Indicators (continued)

Control/Indicator/ Connector	Type of Component	Description
P1	50-pin Amphenol connector	DKT, SLT and Power Failure Transfer interface
P3	44-pin DIN connector	GMAS (sub-motherboard) interface
P4	16-pin female connector	GCDU2 DKT and loop start interface
P5	13-pin female connector	
P6	10-pin female connector	
P7	13-pin female connector	GSTU1 standard telephone interface
P8	10-pin female connector	
P9	6-pin female connector	GCDU2 interface
P10	3-pin connector	HPFB-6 external battery interface
P11	3-pin female connector	GSTU1 standard telephone interface
P400	Modular connector	Interface for two CO Line circuits (Cct 1/2)
P600		Interface for two CO Line circuits (Cct 3/4)
F1	GMAU3: 2.0A Fuse GMAU4: 3.0A Fuse	-24VDC Over current protection

Step 2: GVPH1 Voice Mail PCB (optional)

The first four ports on the GVPH1 do not require a license. The first four port licenses are included in the CIX40 system. Two additional two-port licenses (LIC-2 GVPH) can be added for ports 5 and 6, and ports 6 and 7. Earlier versions, the GVPH-V1 card, have status indicators for only the first four ports. Later versions, the GVPH-V2, have eight indicators. The two circuit boards are otherwise identical. They both support up to eight voice mail ports in systems running R5.10 and later CIX software. Six and eight port GVPH operation is only supported by CIX40 Release 5.10 and later software.

1. Turn off system power.
2. If the GCTU2 is installed, remove the two screws and the PCB stopper (Figure 1-21), then remove the GCTU2.
3. Loosen, do not remove, the two screws and remove the GVPH card stopper. Refer to Figure 1-21.
4. Set the SW6 battery jumper on the GVPH1 to ON and set the Greeting language switch. Refer to Figure 1-16. Default language is “English.” See Table 1-11 for other language settings.
5. Install the GVPH1 into the lower slot of the GMAS (sub-motherboard) (refer to Figure 1-10, Figure 1-11 and Figure 1-21).
6. If you are installing a GCOCIH, MIPU or GIPH insert that card now. Otherwise, refer to “Install the GCTU2 (Processor)” on page 38.
7. Replace the GVPH1 stopper and secure with the two screws. Refer to Figure 1-18.
8. Turn system power on.

Note To program GVPH1, refer to *Strata CIX40 Voice Processing Programming Manual* and use UADM2 software.

❱ To restore the GVPH1 to the data that was stored on the GVPH1 on board RAM (see CAUTION! below)

1. Turn off CIX40 system power and uninstall GCTU2 and GVPH1.
2. Remove the GVPH1 battery jumper for two minutes.
3. Place the GVPH1 battery jumper back to the ON position, then install the GVPH1 and GCTU2.
4. Turn system power on.

CAUTION! Initializing the GVPH1 will over-write all Names, Security codes and saved Messages with the data last saved to the on-board RAM during the last Backup. If the database was never backed up, the factory default data will be restored.

Note A GVMU database can not be restored to a GVPH.

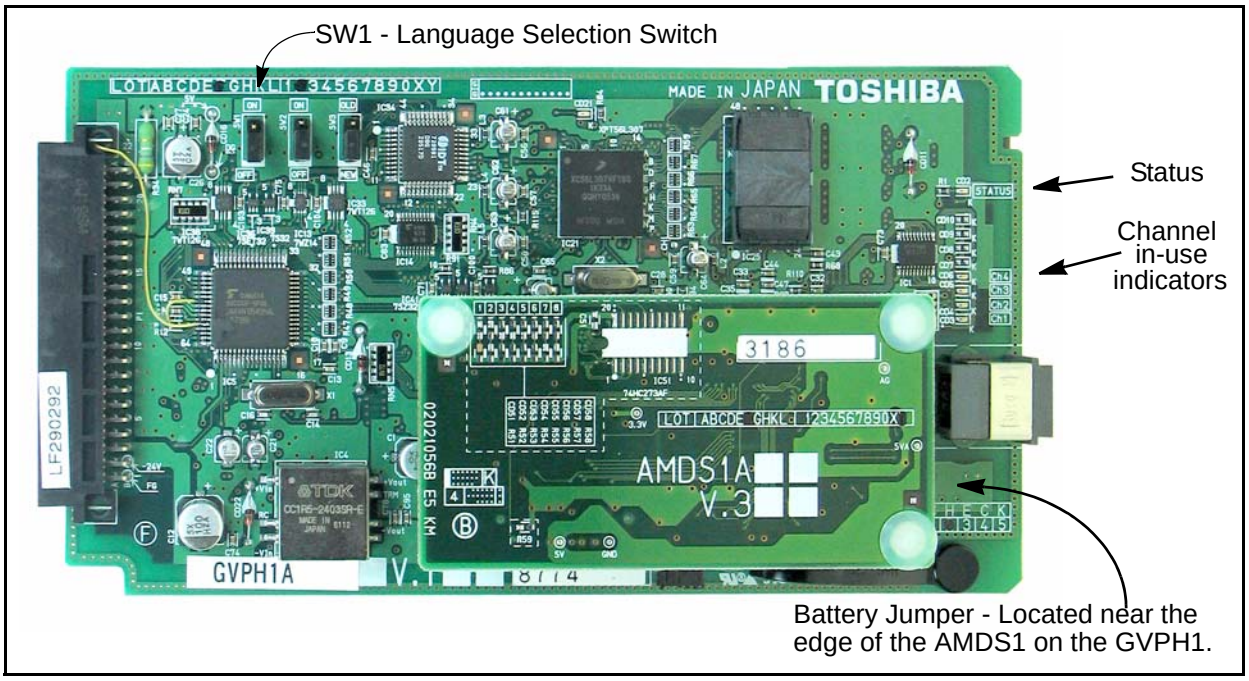


Figure 1-16 GVPH1 Card (Earlier Version shown)

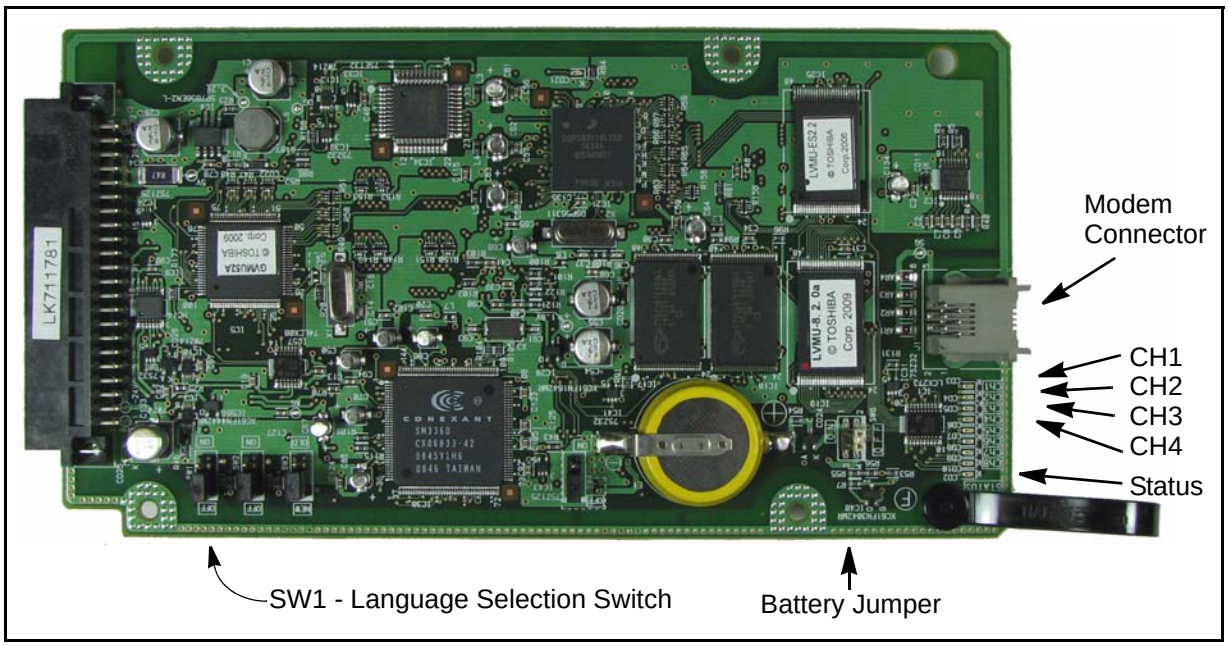


Figure 1-17 GVPH1 Card (Later Version shown)

Voice Mail and Telephone LCD Prompts

The Spanish Language option for CIX telephone LCD prompts and telephone are available in the CIX40 with a GVPH1. The jumpers on GVPH1 (Table 1-11) and the telephone LCD language settings control the default voice greetings and telephone LCD language. The telephone LCD language can be set from the telephone set or from eManager. Both methods are shown below.

From each telephone set:

- To change the language display on the telephone LCD, Dial #4951 for English.
- To change the language display on the telephone LCD, Dial #4954 for Spanish.

Use eManager:

- To set the Telephone LCD language use eManager > Station > Assignments > DKT (Program 204-20).

Table 1-11 Greetings Language Settings on the GVPH1

SW1	GVPH1 Language For 990 / 991 / 983 / 411		Prompt Language[1]
	Greeting 1	Greeting 2	
OFF	English	English then Spanish	English
ON	Spanish	Spanish then English	Spanish

1. Prompt language is set by SW1. The language set by the Admin PC has no effect.

Table 1-12 Other Switch Settings on the GVPH1

Switch	Position	Function
SW2	OFF	For using Admin PC - (Default setting)
	ON	For use by Field Engineer
SW3	New	Program update, latest- (Default setting)
	Old	Program update, previous

Table 1-13 LED Indicators on the GVPH1

Indication/ State	GVPH1 LEDs [1]				
	Ch1	Ch2	Ch3	Ch4	Status
Power On (Initialize Sequence[2])	All LEDs turn ON (Red), then all LEDs turn OFF and cycle ON/OFF through all ports for one to two minutes while initializing and then all LEDs turn off.				
Normal (Busy/Idle)	OFF	OFF	OFF	OFF	Blinking
	ON = Busy; OFF = Idle				
Failure	Blinking	Blinking	Blinking	Blinking	OFF
Shut Down	ON	ON	ON	ON	OFF
Back Up/Restore	ON	ON	ON	ON	ON
No 1.8V input Voltage in GVPH1	ON	OFF	OFF	ON	ON
Not mounted/ defective	Light flickers and switches from the LED to LED (from Ch1~Ch4) + Status LED				

1. GVPH1-V1 have four LEDs, GVPH-V2 have eight LEDs. The four LED test patterns shown in this table are the same for both.
2. The initialize sequence operates each time the CIX40 power is cycled off/on or the CIX40 processor is reset or initialized – GVPH1 program data remains saved. However, if the GVPH1 battery jumper is removed, GVPH1 program data and saved messages will be erased.

Remote Connection

Remote communication to the GVPH1 requires the installation of a modem on the UADM PC (if a modem does not already exist). The GVPH1 comes equipped with an internal modem (AMDS daughter board) of 33.6 Kbps baud and does not require any additional equipment.

UADM PC Modem

Prepare the UADM PC by installing, connecting and configuring a modem. The modem must be capable of communicating at a minimum of 9600 baud.

CAUTION! Internal modems configured for COM ports 3 or 4 are not supported by UADM software.

The UADM PC's modem connects to the GVPH1 through User ID 993.

Step 3: GIPU8, GIPH, MIPU or GCOCIH Installation

The CIX40 system can support one GIPU8, or one GIPH, or one MIPU, or one GCOCIH interface.

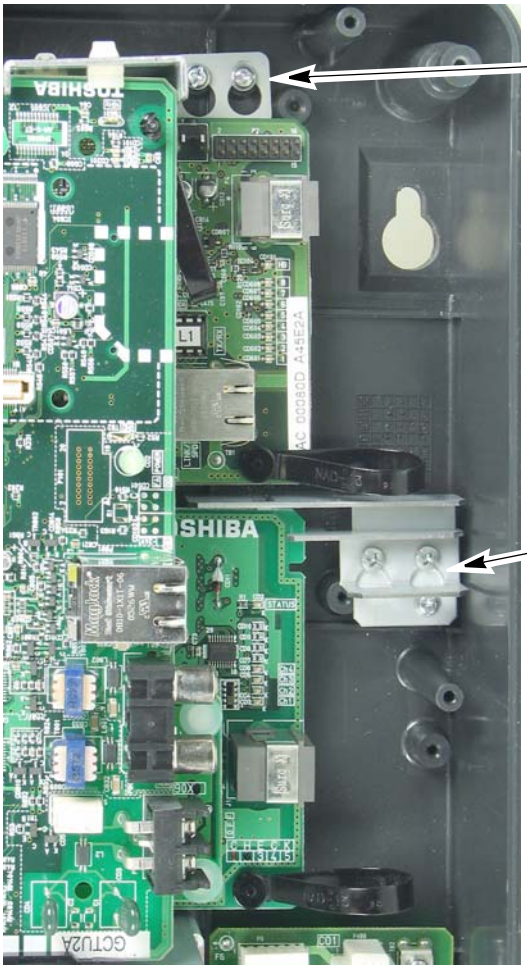


Figure 1-18 Card Stopper and Retainer

GCOCIH1 CO Line Interface PCB Installation (optional)

The GCOCIH1 provide four loop start CO Line circuits. The GCOCIH1 card plugs into the GMAS sub-mother board. This is the slot adjacent to the voice mail card. When the GCOCIH1 card is installed an IP interface card cannot be installed in the system.

Table 1-14 GCOCIH Controls and Switches

Control/Connector	Type of Component	Description
SWxxx	2-position slide switches	3dB Pad switch per circuit
Pxxx	connector	Interface to CCOCIS
P3	Connector	Interface to GMAS
Cct 1/2	RJ connector on GCOCIH	CO LIne circuits 1 and 2
Cct 3/4	RJ connector on CCOCIS	CO LIne circuits 3 and 4

When a GCOCIH1 card is installed, a GIPH1 or MIPU cannot be installed.

1. Turn off system power.
2. In the CIX40 cabinet, remove the two screws and the PCB stopper (Figure 1-21).
3. If the GCTU2 is installed remove it.
4. Install the GCOCIH into the GMAS (sub-motherboard) (see Figure 1-10, Figure 1-11 and Figure 1-21).
5. If you are installing a GVPH insert that card now. Otherwise, refer to “Install the GCTU2 (Processor)” on page 38.

Note The GCOCIH1 cards must be separated to set the PAD switches.

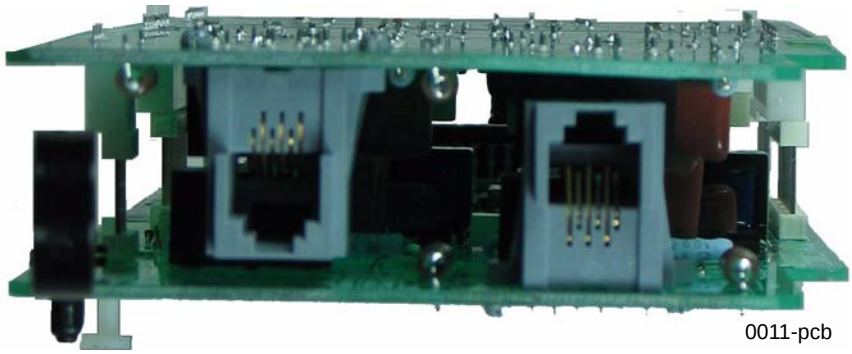


Figure 1-19 GCOCIH with CCOCIS PCB Assembly

Install the GIPH or GIPU8 IP Interface PCB (optional)

When the GIPH1 or GIPU8 or an MIPU card is installed, a GCOCIH1 (four circuit CO Line interface) cannot be installed. For MIPU installation refer to "Install the MIPU 16 or 24-Channel IP Interface PCB (optional)" on page 1-36.

1. Turn off system power.
2. In the CIX40 cabinet, remove the two screws and the PCB stopper (Figure 1-21).
3. If the GCTU2 is installed remove it.
4. Install the GIPH, GIPU8, or MIPU into the GMAS (sub-motherboard) (see Figure 1-10, Figure 1-11 and Figure 1-21).
5. If you are installing a GVPH insert that card now. Otherwise, refer to "Install the GCTU2 (Processor)" on page 38.

Note To program GIPH1, refer to the Strata CIX Programming Manual Volume 1 and use eManager.

Note When set to G.729A with the echo canceller tail length set to 32ms the GIPH operates as a six channel resource,

Licenses are required for IP Telephone and Strata Net IP. Use eManager R5.00-A12, or later, to apply the necessary licenses to the GCTU2 for GIPH, GIPU8, or MIPU operations.

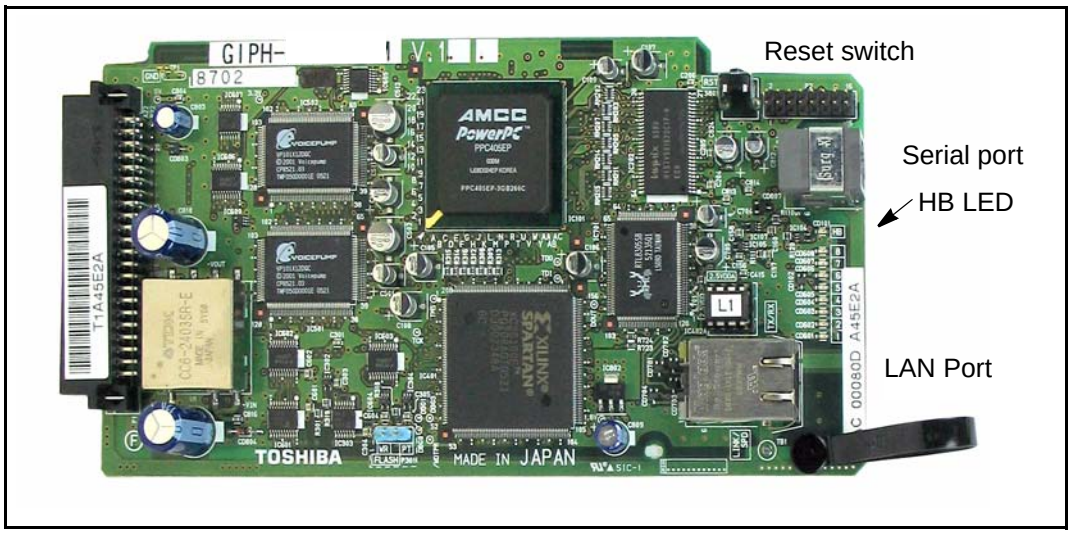
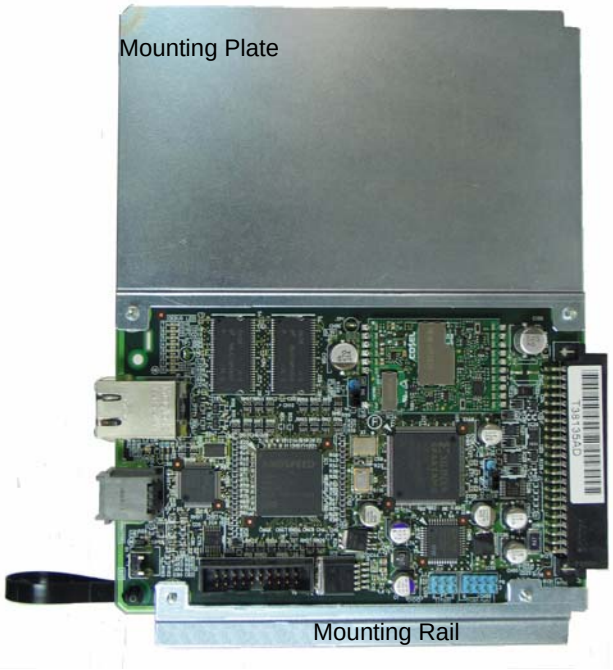


Figure 1-20 GIPH1 Card

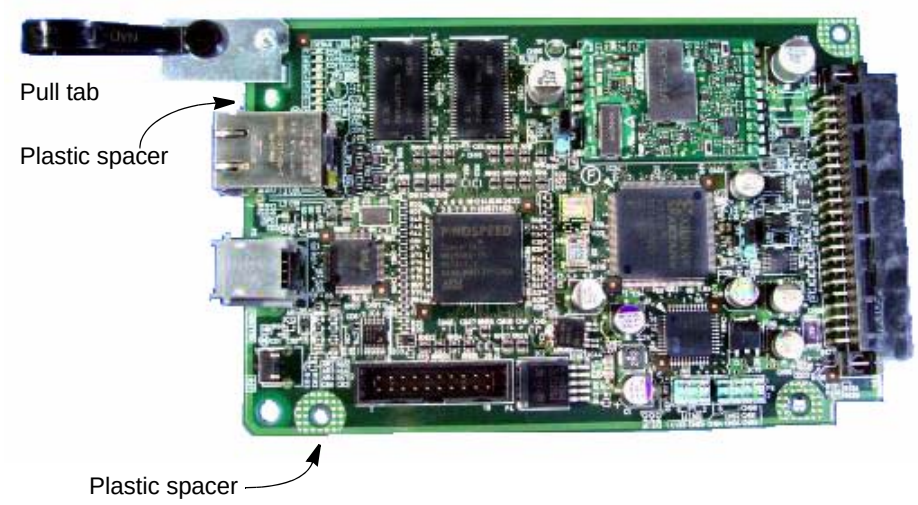
Install the MIPU 16 or 24-Channel IP Interface PCB (optional)

When the GIPH1, GIPU8, or an MIPU card is installed, a GCOCIH1 (four circuit CO Line interface) cannot be installed.

1. Turn off system power.
2. In the CIX40 cabinet, remove the two screws and the PCB stopper (Figure 1-21).
3. If the GCTU2 is installed remove it.
4. If the MIPU is setup for CIX100, 200, 670 cabinets (as shown here) it must be configured for installation in a CIX40 cabinet. Remove the mounting plate and mounting rail.



5. Install the Pull Tab and plastic spacers included in the MIPU package.



6. Install the MIPU into the GMAS (sub-motherboard) (see Figure 1-11 and Figure 1-21).
7. If you are installing a GVPH insert that card now. Otherwise, refer to "Install the GCTU2 (Processor)" on page 38.

Note To program the MIPU, refer to the Strata CIX Programming Manual Volume 1 and use eManager.

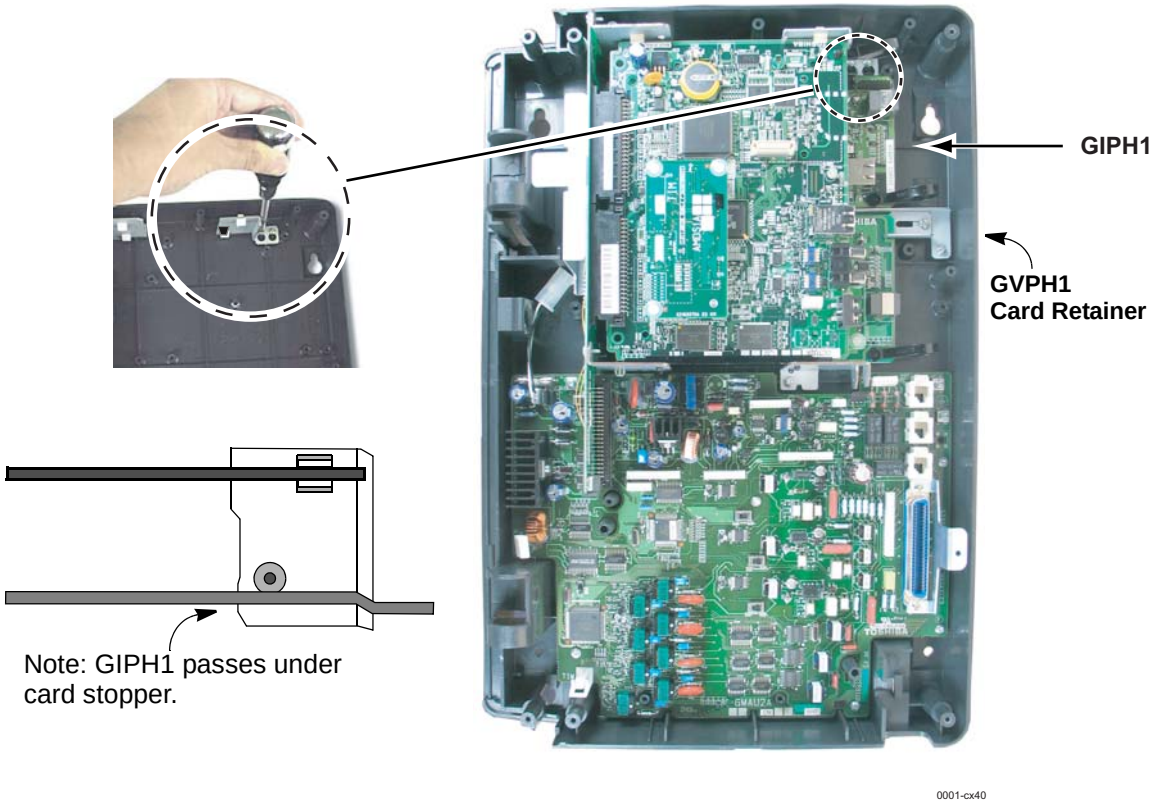


Figure 1-21 GIPH1 / GCTU2 PCB Stopper

The MIPU16 and MIPU24 cards mount in the same location and in the same manner as the GIPH.

Step 4: Install the GCTU2 (Processor)

The GCTU2 is the main processor for the CIX40. It is shipped in a separate box, not in the CIX40 cabinet. The GCTU2A is considered a unit, separate from the cabinet for repair, return and warranty purposes.

❱ To install the GCTU2 into the CIX40

1. If you have not already removed the PCB stopper, remove the two screws and the PCB stopper (see Figure 1-21).
2. Set the P601 battery jumper to ON (see Figure 1-22) and insert the GCTU2 in the upper slot of the GMAS sub-motherboard (see Figure 1-10 and Figure 1-11). Place it next to the guide rail of the PCB stopper (see Figure 1-21).
3. Secure the PCB stopper with the original two screws.
4. Insert the SecureDigital card (gold contacts to left and front, notched corner faces forward and down) into the SecureDigital slot on the GCTU2 (see Figure 1-22).

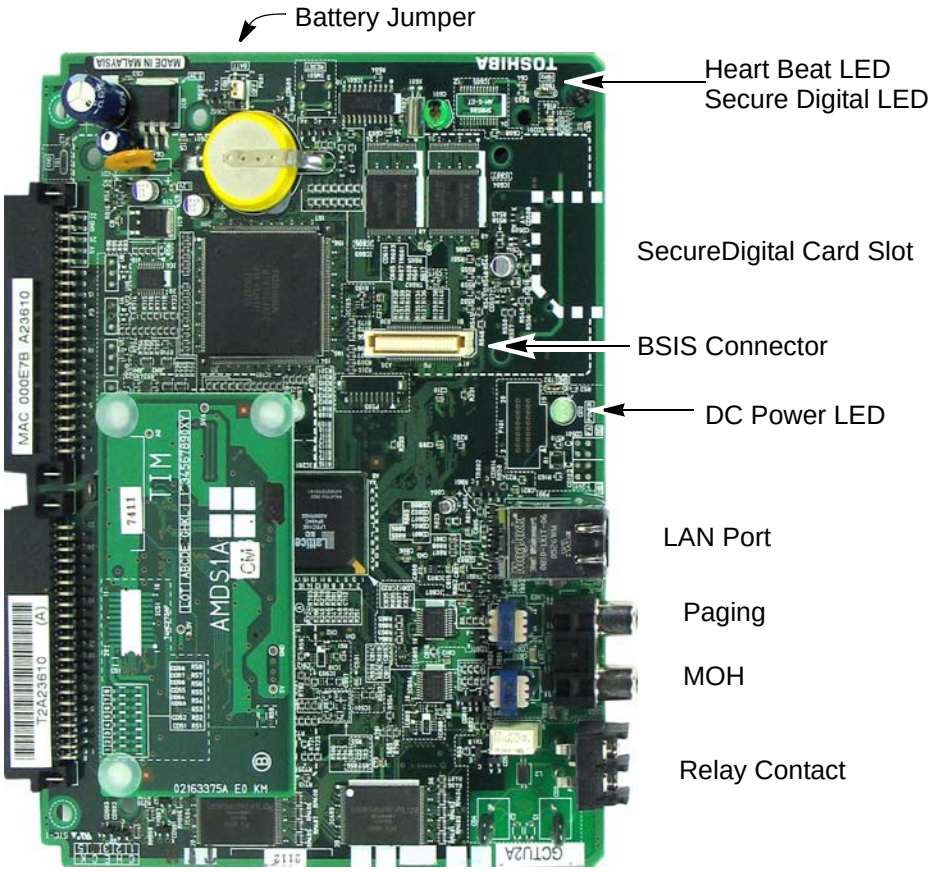


Figure 1-22 GCTU2 PCB

Table 1-15 GCTU2

Control/Indicator/ Connector	Type of Component	Description
P6	60 pin connector	BSIS Interface
P501	Secure Digital port	Secure Digital interface
P601	Jumper plug	Must always be in the “ON” position to maintain customer data
P802	RCA Jack	Paging interface and BGM/MOH interface
P4	2 pin screw terminal	Relay contact
P2	44-pin male DIN connector	CIX40 Back plane connector
P3	44-pin male DIN connector	CIX40 Back plane connector
CD101	LED	Processor operation indication (heartbeat)
CD201	LED	Secure Digital access indicator
CD2	LED	Green DC power indicator for CIX40 system. Shown on front cover (see Figure 1-6).
P801	RJ45	Network interface port (LAN port)

Table 1-16 SecureDigital Memory Cards

Manufacturer	Type	Capacity	Model
TOSHIBA	Normal	64MB	SD-M64B1
		128MB	SD-M128
		256MB	SD-M256
		512MB	SD-M512
	High speed	128MB	SD-F128
		256MB	SD-F256
		512MB	SD-M512
		1GB	SD-M01G
SANDISK	Normal	64MB	AB0407RP
		128MB	AK04278V2
		256MB	AR0408RF
		512MB	AX0405RH
		1GB	BB0405PM
	High speed	256MB	AR0404RG
		512MB	AX0403PN

Step 5: Install the GCDU2 (DKT and Loop Start Interface)

The GCDU2 PCB adds an additional 3 CO lines, 3 Caller ID units, and 8 digital telephone circuits with a single PCB. It attaches to the GMAU2/3/4 motherboard. With the GCDU2 installed, the CIX40 supports up to 16 digital telephones (DKTs), 7 CO lines with Caller ID (GMAU3/4) or 6 CO lines with Caller ID (GMAU2). The GCDU2 does not require a license.

CO Line connectors on earlier versions of the GCDU2 are labeled CO4, CO5 and CO6. Later versions are physically and electrically the same. Only the CO Line connector labels are changed to Cct 1, Cct 2, and Cct 3. Refer to Table 1-23, “CO Line Circuit Connector Labels” on Page 1-52.

Refer to Figure 1-32 on Page 1-51 and Figure 1-32 on Page 1-52 for CO Line circuit connections.

1. Carefully place the GCDU2 pins over the GMAU2/3/4 connectors (see Figure 1-11 and Figure 1-23). Press down on the PCB to secure the pins to the connectors (see Table 1-17).

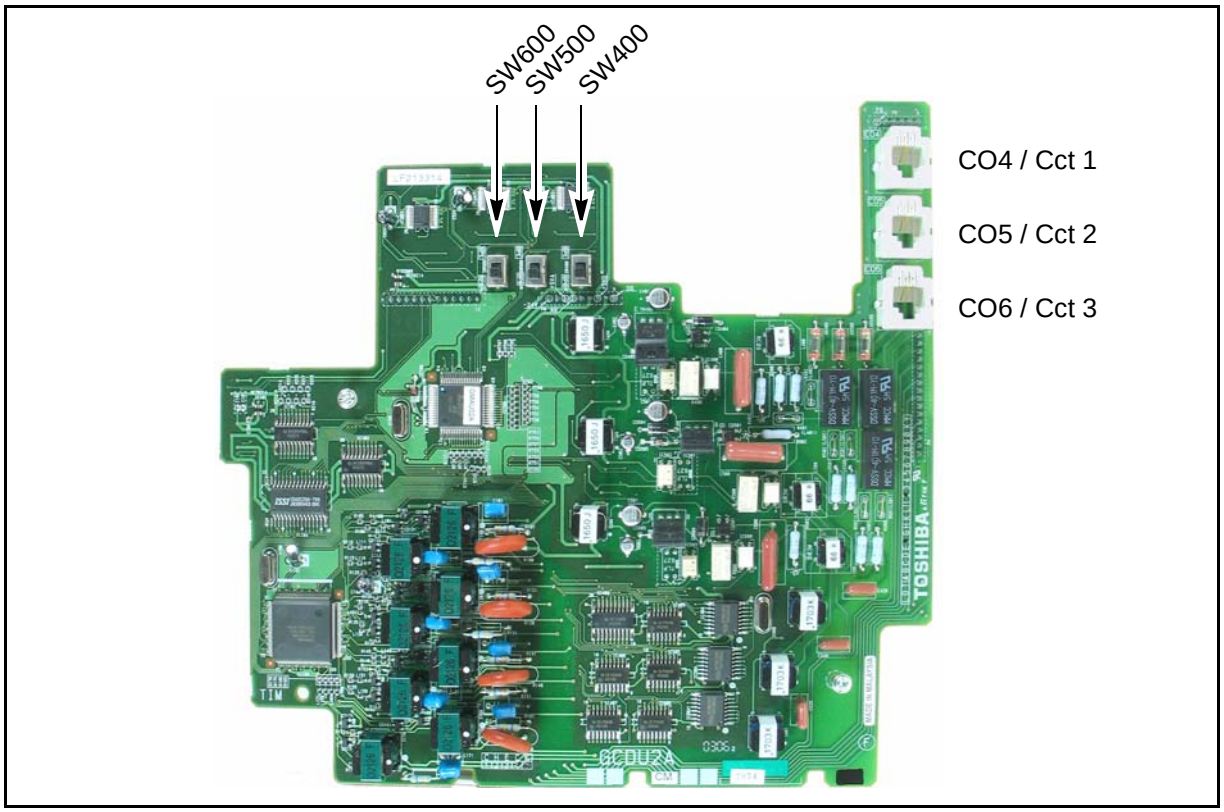


Figure 1-23 GCDU2 PCB

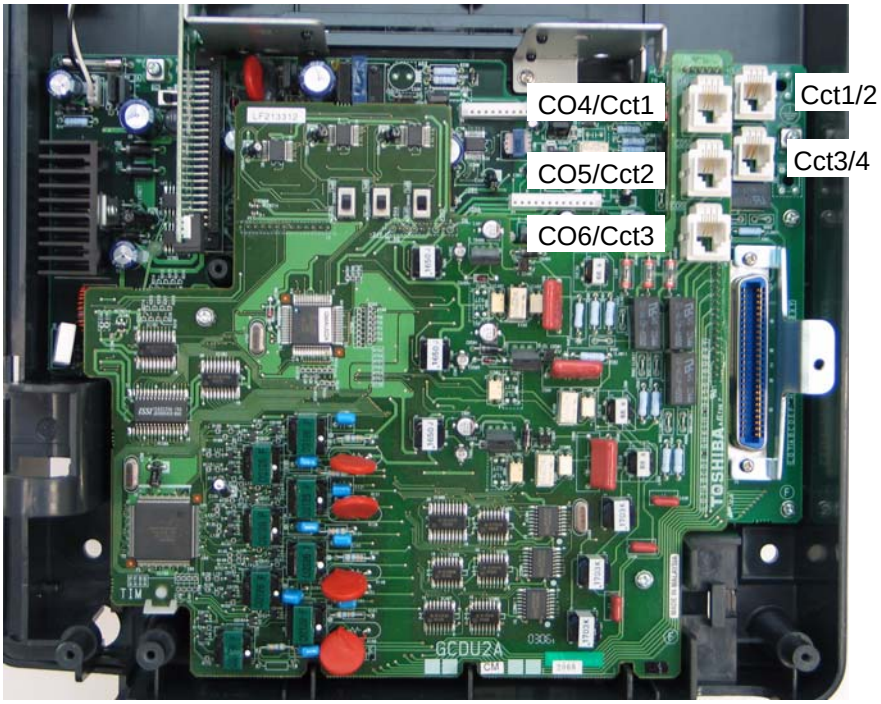


Figure 1-24 GMAU3 with GCDU2 Installed

Table 1-17 GCDU2 Controls, Indicators and Connectors

Control/Indicator/ Connector	Type of Component	Description
SW400	2-position slide switch	3dB Pad switch
SW500		
SW600		
P4	16-pin male connector	GMAU2/3/4 interface
P5	12-pin male connector	
P6	9-pin male connector	
P9	6-pin male connector	
P400	Modular connector	Interface for CO Line circuit (CO4/Cct1)
P500		Interface for CO Line circuit (CO5/Cct2)
P600		Interface for CO Line circuit (CO6/Cct3)

Step 6: Install the GSTU1

The GSTU1 provides one additional standard telephone interface. The GSTU1 does not require a license.

❱ To install the GSTU1, align the GSTU1 pins over the GMAU2/3/4 motherboard and press down firmly. Refer to Figure 1-25.

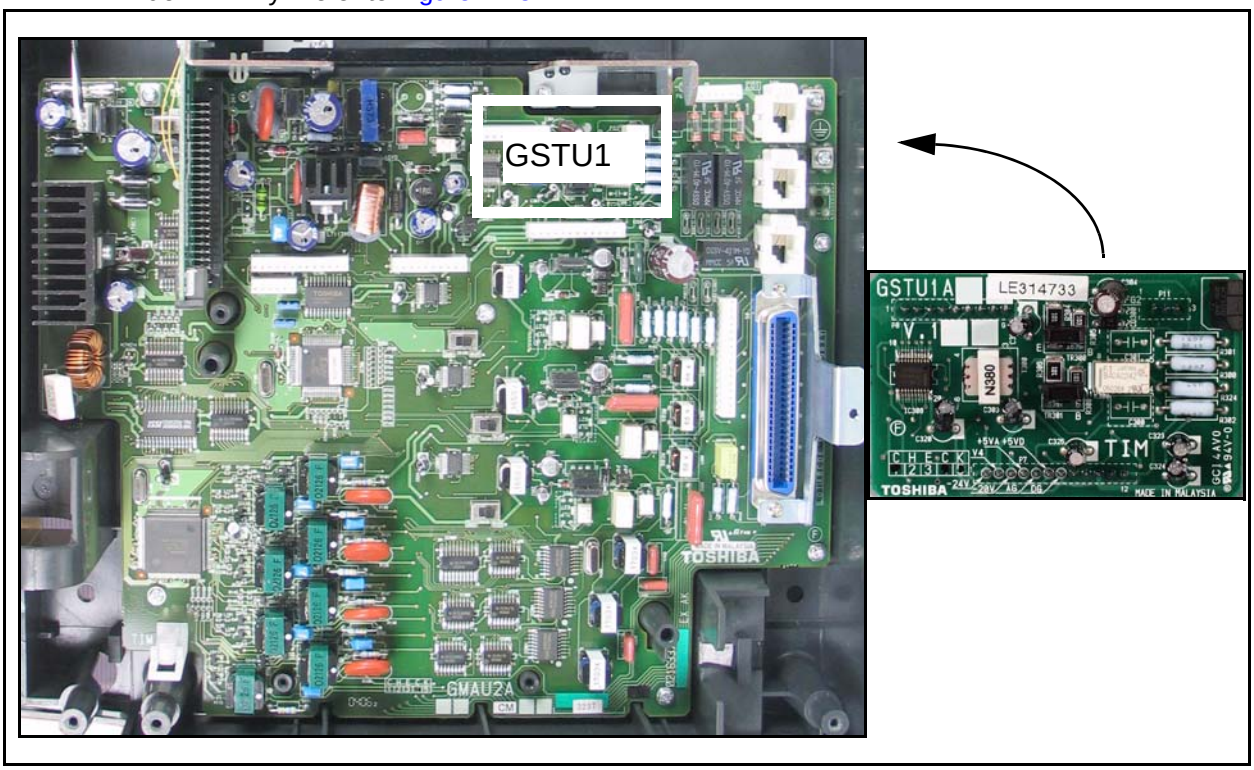


Figure 1-25 GSTU1 PCB

Table 1-18 GSTU1 Controls, Indicators, and Connectors

Control/Indicator/ Connector	Type of Component	Description
P7	12-pin male connector	GMAU2/3/4 interface
P8	9-pin male connector	
P11	3-pin male connector	

Step 7: Install the BSIS (optional)

The BSIS provides four RS-232 serial ports.

❱ To install the BSIS, align the BSIS pins over the GCTU2 and press down firmly (see Figure 1-22). Note that if the BSIS card has an “Up Arrow” it will be pointed down. This is normal, it does not require adjustment, refer to Figure 1-26.

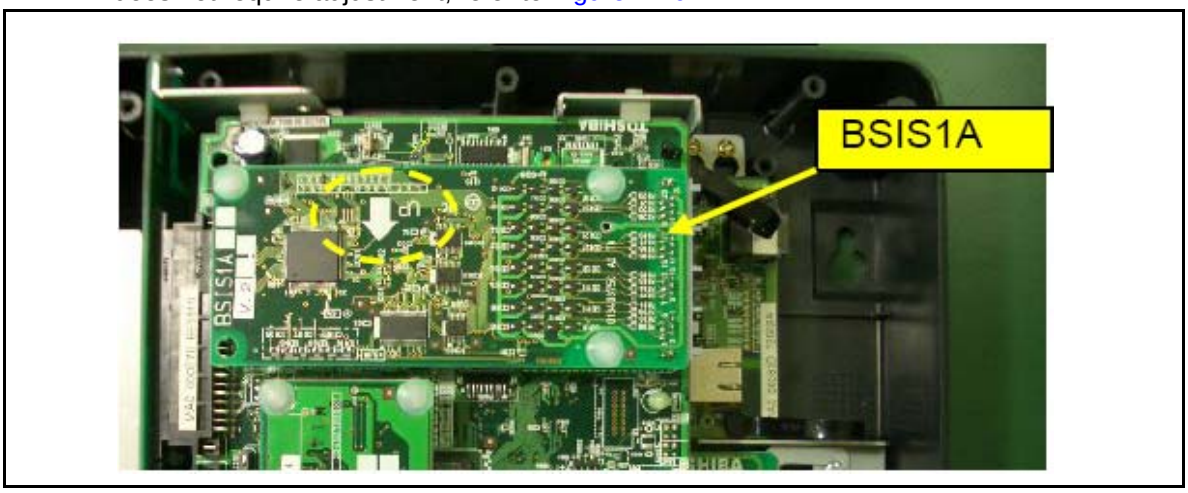


Figure 1-26 BSIS Card

Step 8: Install the HPFB-6 (Reserve Power Battery/Charger)

One or two, optional, HPFB-6 units can be added to the CIX40 to provide reserve power. The amount of reserve power time depends on the hardware (see Table 1-19). The table below is an estimate of battery backup time based on the premise that the HPFB-6 unit(s) are fully charged at the time of AC power failure. This estimated backup time is based on low call traffic, the time estimates will be reduced by as much as half with extreme heavy traffic volumes.

Table 1-19 CIX40 Reserve Power Duration Estimates

Hardware	1 HPFB-6	2 HPFB-6
3 CO/8 DKT - No GVPH1	1 hr. 40 min.	3 hr. 20 min.
3 CO/8 DKT - with GVPH1	1 hr. 30 min	3 hr.
6 CO/16 DKT - No GVPH1	1 hr. 5 min.	2 hr. 10 min.
6 CO/16 DKT - with GVPH1	1 hr.	2 hr.
11 CO/8 DKT - No GVPH1	1 hr. 20 min.	2 hr. 40 min.
11 CO/8 DKT - with GVPH1	1 hr. 10 min.	2 hr. 20 min.
11 CO/16 DKT - No GVPH1	1 hr.	2 hr.
11 CO/16 DKT - with GVPH1	55 min.	1 hr. 50 min.

1. Place the HPFB-6 directly below the Strata CIX40 Cabinet. See Figure 1-28 for minimum clearance requirements. A second HPFB-6 can be installed directly below the unit to supply backup reserve power.

2. Mark the location of the two screw holes, then drill holes.
3. Screw the two screws two-thirds into the mounting surface.
4. Hang the HPFB-6 on the screws then tighten the screws into the mounting surface.
5. Remove the tape covering the BATT connector, the plug the first HPFB-6 connector into BATT connector P10 on the GMAU.
6. Connect a #10 ground AWG wire from the HPFB-6 “FG” screw to the CIX40 screw labeled “TB1” (Figure 1-27).

Note The CIX40 should be plugged into AC power and the DC power switch should be turned On when installing the HPFU-6. The HPFU-6 will not start to operate if AC power is not available during the initial installation.

7. The 24VDC LED on the HPFB-6 should light. If it does not light, press the battery Off switch with a pencil point or other small-tipped object.
8. Dress and tie-wrap the HPFB-6 cables.
9. To mount a second HPFB-6, repeat Steps 1~4, then plug the second HPFB-6 connector in the first HPFB-6 and connect an FG wire between each HPFB-6 FG screw.
10. To test the HPFB-6, remove the CIX40 AC plug from the AC outlet. The CIX40 AC LED will go out, but the CIX40 DC LED remains on. Also the system remains in normal working order and the HPFB-6 24V LED remains on.
11. If it is desired to turn off the HPFB-6 (after loss of AC power), use a pencil or other sharp object to press the Battery Off switch.

CAUTION! Once the HPFB-6 is turned Off or unplugged (during AC power loss) it will not operate again until AC power is restored to the CIX40 Cabinet.

Note The CIX40 Cabinet does not provide a battery charger, the HPFB-6 contains built-in batteries and a battery charger; therefore, do not connect any other type of batteries to the CIX40.

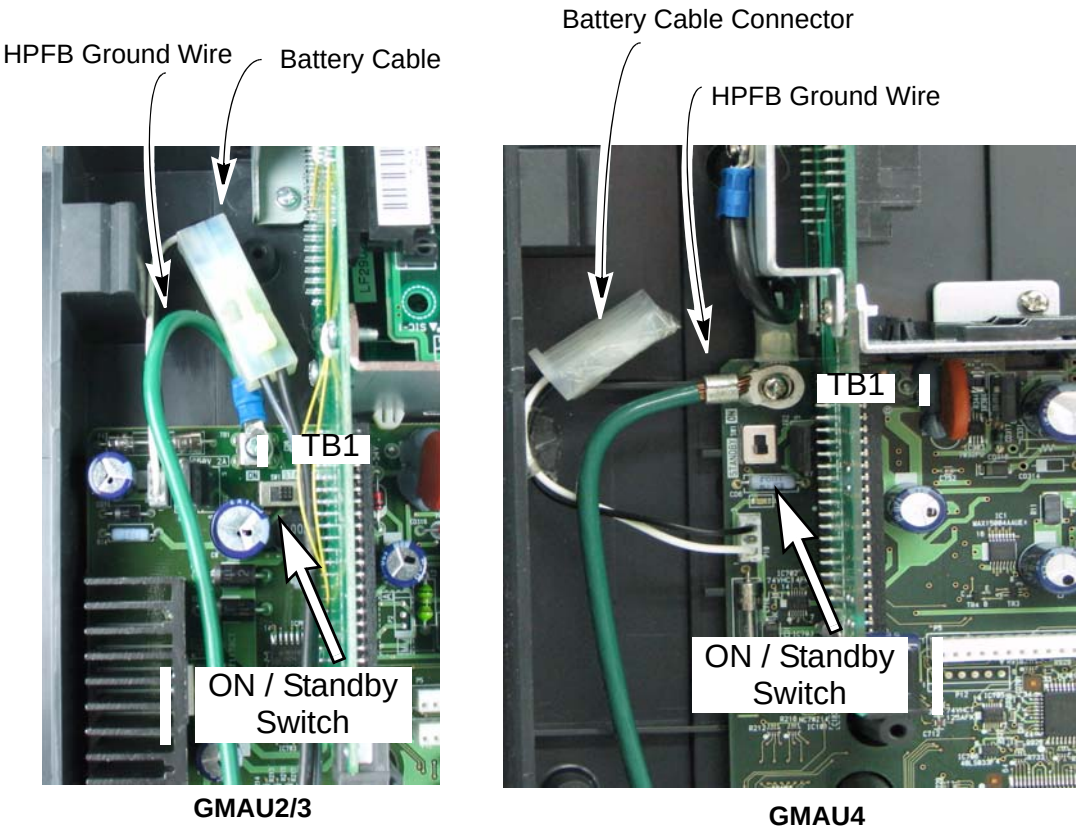


Figure 1-27 HPFB-6 Connection

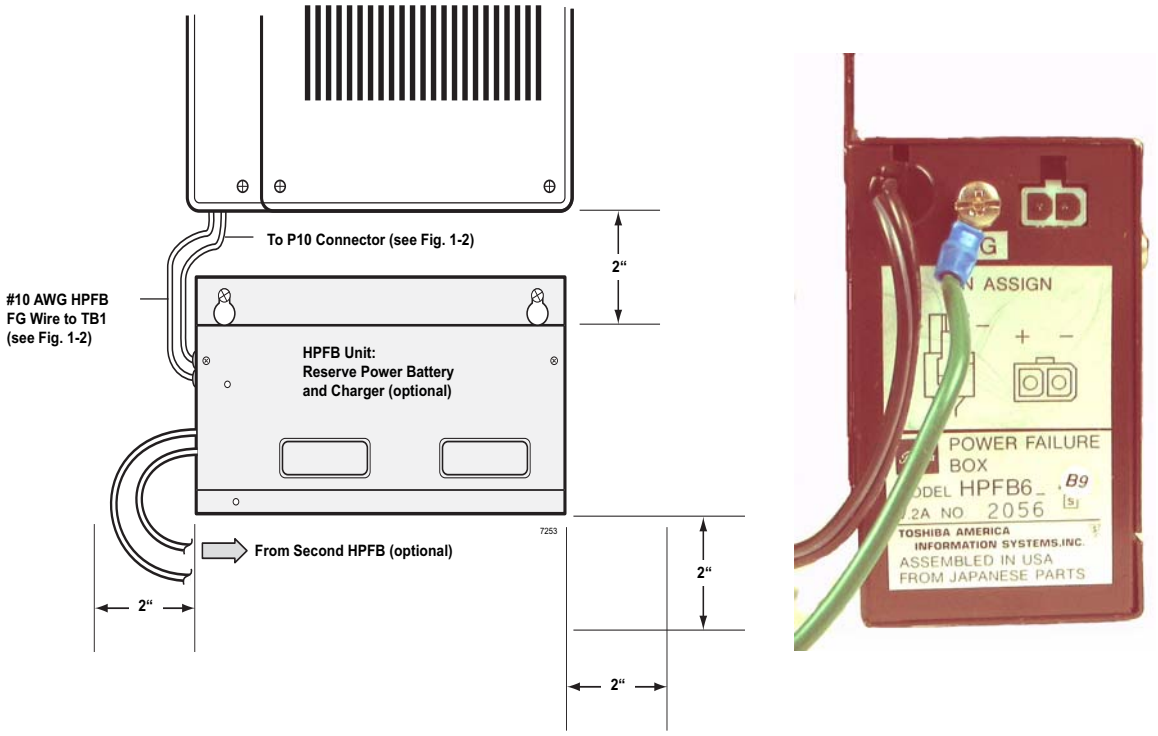


Figure 1-28 HPFB-6 Reserve Power Installation

Digital Telephone Connection

The Strata CIX40 supports any Toshiba 2000, 3000, 3200, DP5000-series digital telephones. The DP5022-SDM telephone is shown right.

Strata CIX40 systems running R5.1 and later SW support the DP5000-series telephones.

The DP5022-SDM only works on the CIX40 without a license. The DP5022-SDM works just like the DP5022-SD.

The DP5022-SDM can be used on the Strata CIX100, 200 or 670 only with a special LIC-1 DP5022-SDM license.

Figure 1-29 DP5022-SDM Telephone

The CIX40 supports all DKT2000, DKT3000, DKT3200, and DP5000-series Add-on Modules and DSS Consoles.

CIX40 supports Handset Off-hook Call Announce (OCA), but not Speaker OCA on digital telephones. Speaker OCA is supported on the IPT2000-series and IP5000-series IP telephones. Refer to Chapter 15 of the Strata CIX and MAS Installation and Maintenance manual.

Supported IP Telephones

- IPT2000-series (not IPT1020)
- IP5000-series (R5.2 and later SW)
- SIP Telephones
- SoftIPT - refer to Chapter 11 of the Strata CIX and MAS Installation and Maintenance manual.

Loop Limits

This section provides the maximum loop lengths for connection of telephones, lines, peripheral equipment, and power supplies. The following information applies to only the Strata CIX40 system refer toTable 1-20 for standard analog connections and Table 1-21 for digital station circuits.

Table 1-20 Standard (Analog) Station Loop Lengths[1]

Mode	Maximum line length (24 AWG)
Standard telephones, voice mail, standard single line telephone device, etc.	Approximately 3000 ft. (909 m) with 150 ohm device. [2]

1. When the system is powered by backup battery, range may be less as the backup battery is discharged.
2. See manufacturer's product specifications for exact resistance of device.

Table 1-21 Digital Telephone/DIU/DDSS Console/ADM/Loop Limits

Device	CIX40 Cabinet or Battery Backup[1]	Maximum line length (24 AWG)	
		1 Pair feet	meters
DP5000-series, DKT3000, DKT3200-series or DKT2000-series models, DKT with BVSU[2] or DVSU or BHEU or HHEU.	CIX40 Cabinet	1000	303
	Battery Backup	695	204
DKT with BPCI	CIX40 Cabinet	1000	303
	Battery Backup	500	151
DKT with BPCI and BHEU	CIX40 Cabinet	1000	303
	Battery Backup	500	151
DDSS3060 or 2060	CIX40 Cabinet	1000	303
	Battery Backup	675	204
DDCB3A	CIX40 Cabinet	165	50
	Battery Backup	500	151
BATI, RATI	CIX40 Cabinet	1000	303
	Battery Backup	1000	303
DKT with 1 ADM	CIX40 Cabinet	675	204
	Battery Backup	165	50
DKT with 2 ADMs	CIX40 Cabinet	500	151
	Battery Backup	33	10

1. Battery backup applies to instances when the system is being powered by batteries exclusively.
2. CIX40 does not support Speaker OCA on digital telephones. Speaker OCA is supported on IPT2000-series and IP5000-series IP telephones.

CIX40 Secondary Protection

The following diagram (see Figure 1-30) shows where secondary protectors must be installed for outside wiring.

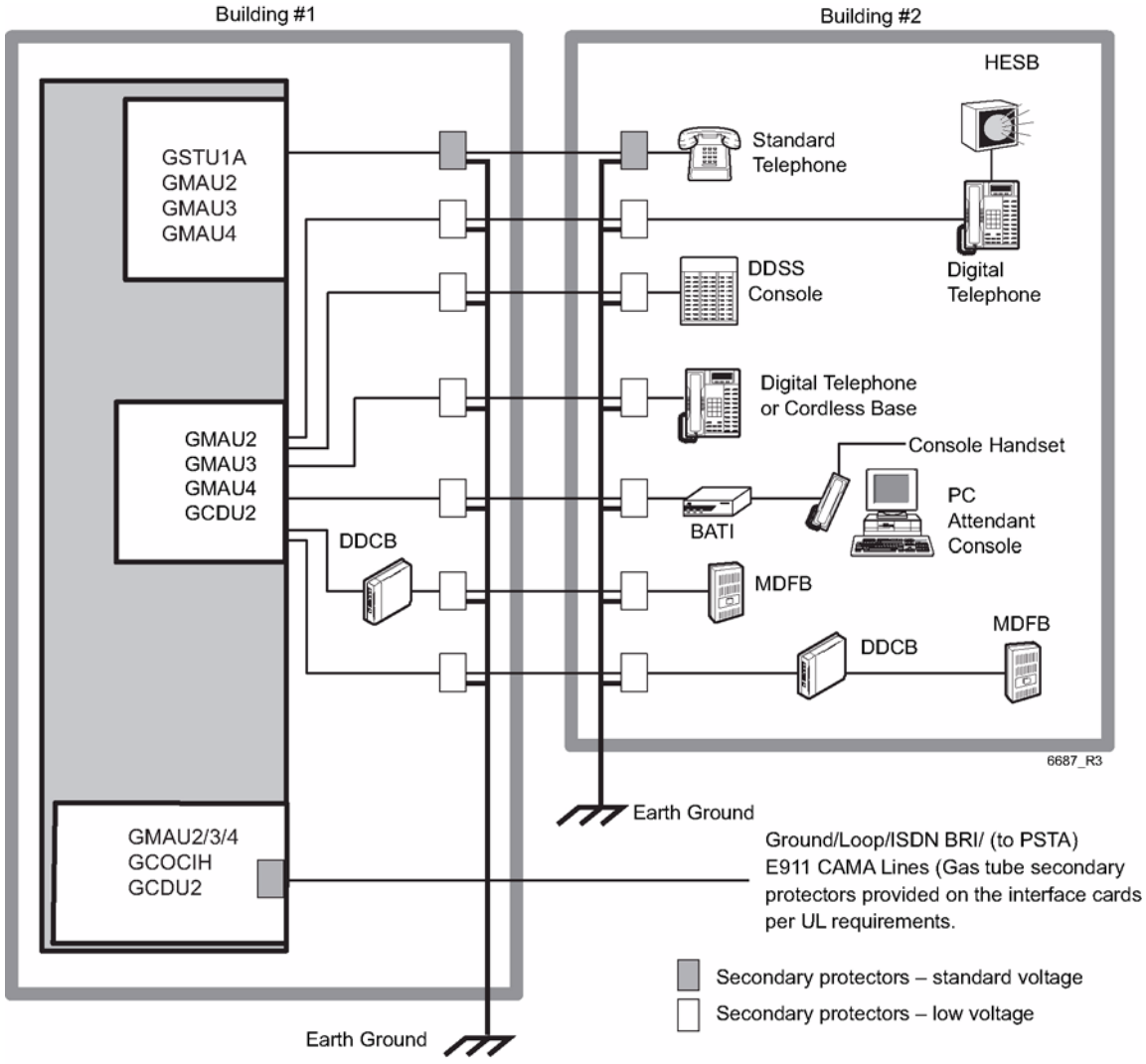


Figure 1-30 CIX40 Secondary Protector Diagram

Important! To protect against transient voltages and currents, solid state secondary protectors must be installed if there is outside wiring. These protectors, which contain fast semiconductors in addition to fuses, shall comply with the requirements for secondary protectors for communication circuits, UL 497A. Care must be taken to ensure that they are very well grounded to a reliable earth ground. Recommended protectors are available in the fast Series 6 line from ONEAC Corp., Libertyville, Illinois 60048, (800) 327-8801. Install and test the secondary protectors precisely to the installation instructions of these manufacturer.

MDF Wiring

This section details the CIX40 system MDF wiring.

Station Wiring

Cross-connect or MDF wiring for the digital telephones, the single line analog stations, and the power-fail station are all made through the 25-pair connector on the GMAU PCB. Refer to Table 1-22.

For Registration information refer to "CIX40 CHSU40A3 FCC/ACTA Registration Number" on page 1-5.

Table 1-22 Station Wiring for Amphenol Connector (P1) on GMAU3 and GMAU2

Pin No.	Signal	Pin No.	Signal	Station
1	VR1	26	VT1	DKT #1
2	VR2	27	VT2	DKT #2
3	VR3	28	VT3	DKT #3
4	VR4	29	VT4	DKT #4
5	VR5	30	VT5	DKT #5
6	VR6	31	VT6	DKT #6
7	VR7	32	VT7	DKT #7
8	VR8	33	VT8	DKT #8
9	VR9	34	VT9	DKT #9
10	VR10	35	VT10	DKT #10
11	VR11	36	VT11	DKT #11
12	VR12	37	VT12	DKT #12
13	VR13	38	VT13	DKT #13
14	VR14	39	VT14	DKT #14
15	VR15	40	VT15	DKT #15
16	VR16	41	VT16	DKT #16
17	(NC)	42	(NC)	
18	PF1R	43	PF1T	PFT circuit*
19	(NC)	44	(NC)	
20	(NC)	45	(NC)	
21	(NC)	46	(NC)	
22	(NC)	47	(NC)	
23	CR1	48	CT1	STU #1
24	(NC)	49	(NC)	
25	CR2	50	CT2	STU #2
* Connect a Standard Telephone to PFT pair to provide access to CO Line1 during a power failure.				

CO Line Circuit Wiring

CO line circuit connectors are on the GMAU and the optional GCDU and GCOCIH PCBs. Refer to Table 1-22 for GMAU2 and GCDU2 connectors. Note that the R2 HW, the GMAU3 and the GCOCIH PCBs have two CO line circuits per connector. Refer to Table 1-23 for the connector locations and labels.

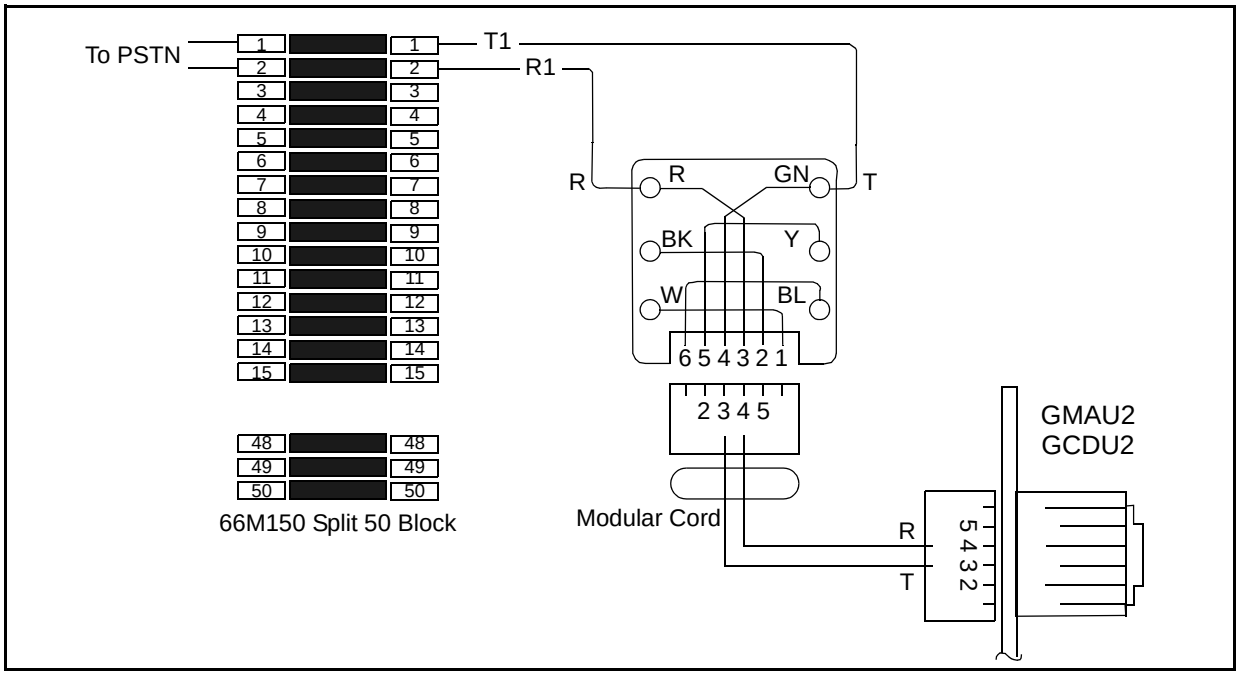


Figure 1-31 MDF Wiring to CO Lines - R1 HW (GMAU2 and GCDU2)

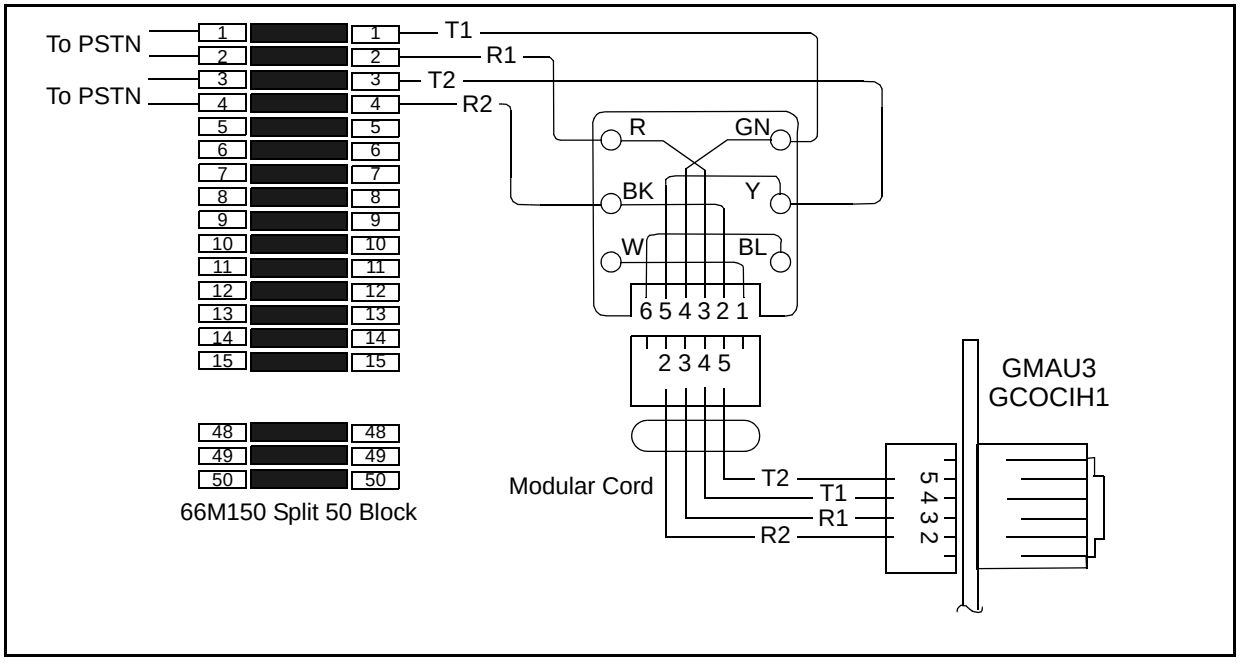


Figure 1-32 MDF Wiring to CO Lines - R2 HW (GMAU3/4 and GCOCIH1)

Table 1-23 CO Line Circuit Connector Labels

CO Line No.	R1 HW				R2 and R3 HW			
	Basic (GMAU2)	With GCDU2	With GCOCIH	With GCDU2 and GCOCIH	Basic (GMAU3/4)	With GCDU2	With GCOCIH	With GCDU2 and GCOCIH
	3 CO Lines	6 CO Lines	7 CO Lines	10 CO Lines	4 CO Lines	7 CO Lines	8 CO Lines	11 CO Lines
11								CO6 or Cct3
10				CO6 or Cct3				CO5 or Cct2
9				CO5 or Cct2				CO4 or Cct1
8				CO4 or Cct1			Cct4	Cct4
7			Cct4	Cct4		CO6 or Cct3	Cct3	Cct3
6		CO6 or Cct3	Cct3	Cct3		CO5 or Cct2	Cct2	Cct2
5		CO5 or Cct2	Cct2	Cct2		CO4 or Cct1	Cct1	Cct1
4		CO4 or Cct1	Cct1	Cct1	Cct4	Cct4	Cct4	Cct4
3	CO3	CO3	CO3	CO3	Cct3	Cct3	Cct3	Cct3
2	CO2	CO2	CO2	CO2	Cct2	Cct2	Cct2	Cct2
1	CO1	CO1	CO1	CO1	Cct1	Cct1	Cct1	Cct1

GVPH1 Administration PC Connections

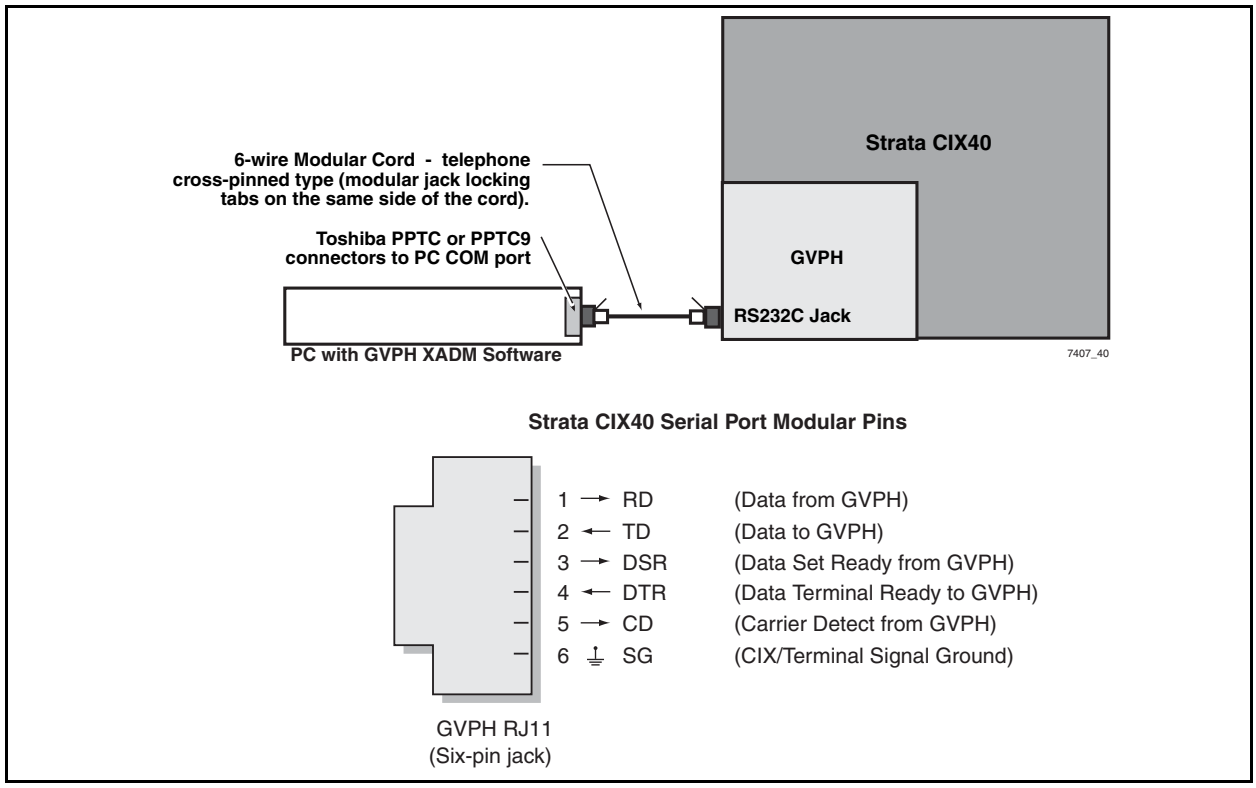


Figure 1-33 GVPH1 Serial Port Interface Connection

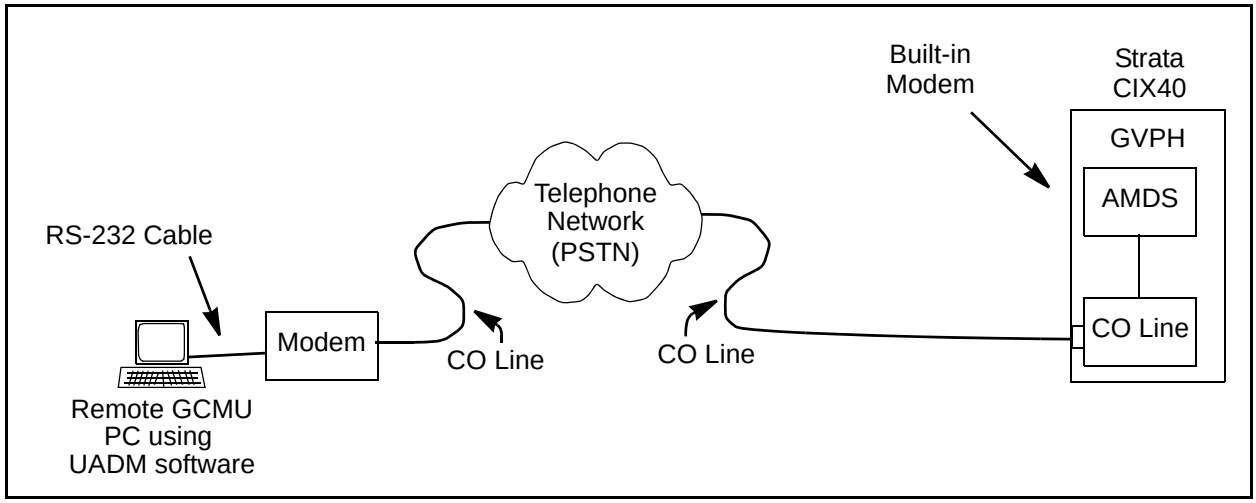


Figure 1-34 GVPH1 PC Modem Interface Connection

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CIX40 Default Database 2

CIX40 Release 5.10 and later software initializes with a default database that is different than the previous releases.

CIX40 R1 HW, R2 HW, and R3 HW Systems

The system is pre-programmed with a limited database that allows the system function from initial power-up for easy, cost effective installation.

The table below shows the differences in the PCB card slot assignment in R2/R3 hardware. The physical location in R1, R2, and R3 hardware is the same. Only the card slot assignments in the database programming is different.

Card Slot	PCB Type		
	R4 Software	R5.10 Software	
		R1 Hardware	R2/R3 Hardware
0101	DKU8	DKU8	DKU8
0102	3COCIU	3COCIU	4COCIU
0103	—	—	GVPH
0104	SLU + GSTU	SLU + GSTU	SLU + GSTU
0105	GVPH	GVPH	GIPH, GIPU8, MIPU OR GCOCIH
0106	GIPH	GIPH, GIPU8, MIPU OR GCOCIH	—
0107	DKU8	DKU8	DKU8
0108	3COCIU	3COCIU	3COCIU

Note If a GIPH, GIPU8, MIPU or GCOCIH is not installed at initial start up, no data will be set.

When a existing R4 software system is upgraded to R5.10 or later software the card slot assignments are automatically updated.

CIX40 Default Initialized Data

This section applies to systems running R5.10 or later software. The information in Table 2-1 applies to the GCTU2A processor card IP connection.

Table 2-1 Prog 916 – System IP Address Default Data

FB1	IP Address	192.168.254.253
FB2	Subnet Address	255.255.255.0
FB3	Default Gateway Address	192.168.254.1

CO Line Circuit Capacity

The tables below show the number of CO lines supported based on the hardware installed and the default CO Key assignments.

Table 2-2 CO Line Capacity

	GMAU2		GMAU3/4	
	without GCDU2	**with GCDU2** [1]	**without GCDU2**	**with GCDU2** [1]
without GCOCIH	3	6	4	7
with GCOCIH	7	10	8	11

Table 2-3 DKT CO Key Assignments

	GMAU2				GMAU3/4			
	3 CO	**6 CO**	**7 CO**	**10 CO**	**4 CO**	**7 CO**	**8 CO**	**11 CO**
FK12								CO11 [1]
FK11				CO10 [1]				CO10 [1]
FK10				CO9 [1]				CO9 [1]
FK9				CO8 [1]			CO8 [2]	CO8 [2]
FK8			CO7 [2]	CO7 [2]		CO7 [1]	CO7 [2]	CO7 [2]
FK7		CO6 [1]	CO6 [2]	CO6 [2]		CO6 [1]	CO6 [2]	CO6 [2]
FK6		CO5 [1]	CO5 [2]	CO5 [2]		CO5 [1]	CO5 [2]	CO5 [2]
FK5		CO4 [1]	CO4 [2]	CO4 [2]	CO4	CO4	CO4	CO4
FK4	CO3	CO3	CO3	CO3	CO3	CO3	CO3	CO3
FK3	CO2	CO2	CO2	CO2	CO2	CO2	CO2	CO2
FK2	CO1	CO1	CO1	CO1	CO1	CO1	CO1	CO1
FK1	PDN	PDN	PDN	PDN	PDN	PDN	PDN	PDN

The table above shows the data set, even if the DKT installed has fewer keys.

- The default programming data shown in Table 2-3 applies even if the option units (GCDU2/ GSTU1/GVPH1) are not mounted. This enables voice mail to be used as is if the GVPH1 is inserted.
- When GCDU2 is unmounted, CO4-6 or CO4 to CO7 and DKTs 9-16 are “make-busy” and cannot be used.
- When the GCOCIH is not installed CO4 to CO7 or CO4 to CO8 are “make busy.”
- When GSTU1 is not installed, SLT2 is not “make busy.”
- When GVPH1 is not installed, VM ports 1-4 are “make busy.”

Table 2-4 Program 204 Default Data

In Program 204, all telephones are programmed as 20 buttons.

Table 2-5 Program 102 Default Data

Feature Code	Default Value	Function
870	#963	Call Monitor Log Off

Table 2-6 Program 205/213/215 Default Data

Feature Code	Function
870	Call Monitor Feature Button

Table 2-7 Program 313 Default Data

Caller ID	Prog 313	Function		CIX40 default
	FB1	Caller ID Receive Method	nothing/ANI-MCI/ANI-Sprint/CLASS	CLASS
	FB2	Caller ID Identification Notice Contents	ANI and DNIS/DNIS/DID	ANI or DNIS
Underlined values are CIX100 default. **Note:** Class Equipment number is not required for CIX40 because CLID circuits are built-in and dedicated to each CO line.				

Table 2-8 Program 100 Default Data — GMAU2 -- R1 HW System with R5.1 SW

Equip. Nos.	Circuits	PCB Code [1]	Station / Line Numbers	Connection
0101	8 - Digital Telephones (no speaker OCA)	017	200~207	GMAU2 (motherboard)
0102	3 - CO lines with CLID	028	CO1~CO3	
0103	Not used			
0104	Standard Telephone 01~02	026	01~208 02~217	01-GMAU2 02-GSTU1
0105	4 - Voice Mail ports	035	220~223	GVPH1
0106	4 - CO lines with CLID	032	CO4 ~ CO7	GCOCIH
	8 - Channel IP Interface	036 ~ 038	Not assigned [2]	GIPU8/GIPH/ MIPU [3]
0107	8 - Digital Telephones	017	209~216	GCDU2 [4]
0108	3 - CO Lines with CLID	028	CO4~CO6 or CO8~CO10[5]	
0205	Virtual BIOU	020	Relay Contact Page, MOH	GCTU2
*Slot codes are set during system initialization and cannot be changed.				

1.The GMAU2, GVPH1 and GSTU1 PCB Slot Codes and the Station/CO Line numbers are set during initialization even if the cards are not installed in the cabinet. The GCDU2 must be installed in the cabinet before initialization for auto recognition of slot code, station numbers and CO line numbers.

2.The ports must be assigned, after the card is installed. The GIPU8, GIPH and MIPU are the only CIX40 cards that require licensing. Use eManager to install Strata Net, End point and SoftIPT licenses and, assign PDNs and Strata Net channels.

3.The CHSU40A (R1) cabinet supports GIPU8, GIPH and MIPU16 only, not the MIPU24.

4.When the GCDU2 is installed after the CIX40 is initialized use eManager to assign the slot code, station numbers and CO line numbers.

5.CO8 to CO10 if the GCOCIH card is installed.

Table 2-9 Prog 921 Traffic Measurement Control (R5.10 SW)

FB1	Traffic Measure Activate	Enable
FB14	Traffic Measure ILG	ILG1 Enable
FB15	Traffic Measure OLG	OLG1 Enable

Table 2-10 Program 100 Default Data — GMAU3/4 -- R2/R3 HW System

Equip. Nos.	Circuits	PCB Code [1]	Station / Line Numbers	Connection
0101	8 - Digital Telephones (no speaker OCA)	017	200~207	GMAU3/4 (motherboard)
0102	4 - CO lines, with CLID	032	CO1~CO4	
0103	4 - Voice Mail ports	035	220 ~ 223	GVPH
0104	Standard Telephone 01~02	026	01~208 02~217	01-GMAU3/4 02-GSTU1
0105	4 - CO lines, with CLID	032	CO5~CO8	GCOCIH
	8/16/24 IP Channels	036 ~ 039	Not assigned [2]	GIPH/GIPU8/ MIPU [3]
0106	Not Used			
0107	8 - Digital Telephones	017	209~216	GCDU2 [4]
0108	3 - CO Lines with CLID	028	CO5~CO7 or CO9~CO11 [5]	
0205	Virtual BIOU	020	Relay Contact Page, MOH	GCTU2
*Slot codes are set during system initialization and cannot be changed.				

1.The GMAU3/4, GVPH1 and GSTU1 PCB Slot Codes and the Station/CO Line numbers are set during initialization even if the cards are not installed in the cabinet. The GCDU2 and GCOICH must be installed in the cabinet before initialization for auto recognition of slot code, station numbers and CO line numbers.

2.The ports must be assigned, after the card is installed. The GIPH and MIPU are the only CIX40 cards that require licensing. Use eManager to install Strata Net, End point and SoftIPT licenses and, assign PDNs and Strata Net channels.

3.CHSU40A2 (R2) and CHSU40A3 (R3) cabinets support GIPU8, GIPH, MIPU16, and MIPU24.

4.When the GCDU2 is installed after the CIX40 is initialized use eManager to assign the slot code, station numbers and CO line numbers.

5.CO9~CO11 when GCIOCH card is installed.

Table 2-11 Program 200 Default Data

	GMAU2 or GMAU3 or GMAU4									
FB0	**DN**	**200**	**201**	**202**	**203**	**204**	**205**	**206**	**207**	**208**
FB1	EQUIP	010101	010102	010103	010104	010105	010106	010107	010108	010401
FB2		DKT	DKT	DKT	DKT	DKT	DKT	DKT	DKT	SLT
FB3		Ext.	Ext.	Ext.	Ext.	Ext.	Ext.	Ext.	Ext.	Ext.
FB19	VM ID	200	201	202	203	204	205	206	207	208
FB22	VM MW Center Port	250	250	250	250	250	250	250	250	250
FB35	Station Speed Dial Bins	10	10	10	10	10	10	10	10	10

Table 2-12 Prog 200 Default Data for GCDU2

GCDU2										GSTU1
FB0	**DN**	**209**	**210**	**211**	**212**	**213**	**214**	**215**	**216**	**217**
FB1	EQUIP	010701	010702	010703	010704	010705	010706	010707	010708	010402
FB2		DKT	DKT	DKT	DKT	DKT	DKT	DKT	DKT	SLT
FB3		Ext.	Ext.	Ext.	Ext.	Ext.	Ext.	Ext.	Ext.	Ext.
FB19	VM ID	209	210	211	212	213	214	215	216	217
FB22	VM MW Center Port	250	250	250	250	250	250	250	250	250
FB35	Station Speed Dial Bins	10	10	10	10	10	10	10	10	10

Table 2-13 Prog 200 Default Data for GVPH1[1] -- R1 HW System

GVPH1					
FB0	**DN**	**220**	**221**	**222**	**223**
FB1	EQUIP	010501	010502	010503	010504
FB2		SLT	SLT	SLT	SLT
FB3		Voice Mail	Voice Mail	Voice Mail	Voice Mail
FB19	VM ID				
FB22	VM MW Center Port	Leave blank	Leave blank	Leave blank	Leave blank

1.The default Voicemail port value is four. At initialization the system checks the number of voicemail licenses. The DNs assigned are 220 ~ 223 for four licenses, 220 ~ 225 for six licenses, or 220 ~ 227 for eight licenses.

Table 2-14 Prog 200 Default Data for GVPH1[1] -- R2 HW System

GVPH1					
FB0	**DN**	**220**	**221**	**222**	**223**
FB1	EQUIP	010301	010302	010303	010304
FB2		SLT	SLT	SLT	SLT
FB3		Voice Mail	Voice Mail	Voice Mail	Voice Mail
FB19	VM ID				
FB22	VM MW Center Port	Leave blank	Leave blank	Leave blank	Leave blank

1.The default Voicemail port value is four. At initialization the system checks the number of voicemail licenses. The DNs assigned are 220 ~ 223 for four licenses, 220 ~ 225 for six licenses, or 220 ~ 227 for eight licenses. If the LIC-2 GVPH licenses are not applied before the Strata CIX40 system is initialized VM ports 224~227 will not be set in the CIX DN programming assignment.

Table 2-15 Prog 579 Default Data

FB04	Output of Class, ANI and DNIS	1 (Enable)	
FB05	Calling Number Digits Sent to VM	10	Same as CIX100 Do NOT change for GVPH1
FB16	VMDN (Distributed Hunt Group Pilot)	250	Message Center Call-back
FB19	SMDI ANI / CLID Digit Length	10	Same as CIX100 Do NOT change for GVPH1

Note To log into GVPH1 boxes for the first time, enter the default telephone station number plus 997. Example: for Station 200, enter 200997 as the Security Code.

Table 2-16 Prog 580 – Voice Mail Data Assignment Default Data for GVPH1

FB0	DN	220	221	222	223
FB1	INBAND / SMDI	SMDI	SMDI	SMDI	SMDI
Note: In Program 209, the above Voice Mail ports are assigned to (distributed) Hunt Group 01. D. H. Pilot DN 250					

Table 2-17 Prog 218 – Voice Mail Hunt Group Assignment Default Data

FB0	GRP	1	1	1	1
FB1	INDEX	1	2	3	4
FB2	GVPH DN	220	221	222	223
Note: VM ports are assigned to Hunt Group 1 (distributed) in Prog. 209 in default data. D. H. Pilot DN 250. GVPH DN 224 ~ 227 will be automatically assigned if the LIC-2 GVPH licenses are applied before the Strata CIX40 system in initialized.					

Table 2-18 Prog 300 Default Data - GMAU2

FB0	FB1	FB2	FB3	FB4	FB5	FB12
TRK NO.	EQUIP	ILG	OLG			Hunt Order
1	010201	1	1	DTMF	LOOP	1
2	010202	1	1	DTMF	LOOP	2
3	010203	1	1	DTMF	LOOP	3
4	010801	1	1	DTMF	LOOP	4
5	010802	1	1	DTMF	LOOP	5
6	010803	1	1	DTMF	LOOP	6

Table 2-19 Prog 300 Default Data - GMAU2 with GCOICH

FB0	FB1	FB2	FB3	FB4	FB5	FB12
TRK NO.	EQUIP	ILG	OLG			Hunt Order
1	010201	1	1	DTMF	LOOP	1
2	010202	1	1	DTMF	LOOP	2
3	010203	1	1	DTMF	LOOP	3
4	010601	1	1	DTMF	LOOP	4
5	010602	1	1	DTMF	LOOP	5
6	010603	1	1	DTMF	LOOP	6
7	010604	1	1	DTMF	LOOP	7

Table 2-20 Prog 300 Default Data - GMAU3/4

FB0	FB1	FB2	FB3	FB4	FB5	FB12
TRK NO.	EQUIP	ILG	OLG			Hunt Order
1	010201	1	1	DTMF	LOOP	1
2	010202	1	1	DTMF	LOOP	2
3	010203	1	1	DTMF	LOOP	3
4	010204	1	1	DTMF	LOOP	4
5	010501	1	1	DTMF	LOOP	5
6	010502	1	1	DTMF	LOOP	6
7	010503	1	1	DTMF	LOOP	7

Table 2-21 Prog 300 Default Data - GMAU3/4 with GCOICH

FB0	FB1	FB2	FB3	FB4	FB5	FB12
TRK NO.	EQUIP	ILG	OLG			Hunt Order
1	010201	1	1	DTMF	LOOP	11
2	010202	1	1	DTMF	LOOP	10
3	010203	1	1	DTMF	LOOP	9
4	010204	1	1	DTMF	LOOP	8
5	010501	1	1	DTMF	LOOP	7
6	010502	1	1	DTMF	LOOP	6
7	010503	1	1	DTMF	LOOP	5
8	010504	1	1	DTMF	LOOP	4
9	010801	1	1	DTMF	LOOP	3
10	010802	1	1	DTMF	LOOP	2
11	010803	1	1	DTMF	LOOP	1

Table 2-22 Prog 310 Default Data - GMAU2 (Trunk > Assignment > DIT)

Trunk Number	FB0	FB1	FB2	FB3	FB4
	EQUIP	Day 1 Destination	Day 2 Destination	Night Destination	Music On Hold Source
1	010201	No Data	No Data	No Data	Processor MOH Jack
2	010202	No Data	No Data	No Data	Processor MOH Jack
3	010203	No Data	No Data	No Data	Processor MOH Jack
4	010801	No Data	No Data	No Data	Processor MOH Jack
5	010802	No Data	No Data	No Data	Processor MOH Jack
6	010803	No Data	No Data	No Data	Processor MOH Jack

Table 2-23 Prog 310 Default Data - GMAU2 with GCOICH (Trunk > Assignment > DIT)

Trunk Number	FB0	FB1	FB2	FB3	FB4
	EQUIP	Day 1 Destination	Day 2 Destination	Night Destination	Music On Hold Source
1	010201	No Data	No Data	No Data	Processor MOH Jack
2	010202	No Data	No Data	No Data	Processor MOH Jack
3	010203	No Data	No Data	No Data	Processor MOH Jack
4	010601	No Data	No Data	No Data	Processor MOH Jack
5	010602	No Data	No Data	No Data	Processor MOH Jack
6	010603	No Data	No Data	No Data	Processor MOH Jack
7	010604	No Data	No Data	No Data	Processor MOH Jack

Table 2-24 Prog 310 Default Data - GMAU3/4 (Trunk > Assignment > DIT)

Trunk Number	FB0	FB1	FB2	FB3	FB4
	EQUIP	Day 1 Destination	Day 2 Destination	Night Destination	Music On Hold Source
1	010201	No Data	No Data	No Data	Processor MOH Jack
2	010202	No Data	No Data	No Data	Processor MOH Jack
3	010203	No Data	No Data	No Data	Processor MOH Jack
4	010204	No Data	No Data	No Data	Processor MOH Jack
5	010801	No Data	No Data	No Data	Processor MOH Jack
6	010802	No Data	No Data	No Data	Processor MOH Jack
7	010803	No Data	No Data	No Data	Processor MOH Jack

Table 2-25 Prog 310 Default Data - GMAU3/4 with GCOICH (Trunk > Assignment > DIT)

Trunk Number	FB0	FB1	FB2	FB3	FB4
	EQUIP	Day 1 Destination	Day 2 Destination	Night Destination	Music On Hold Source
1	010201	No Data	No Data	No Data	Processor MOH Jack
2	010202	No Data	No Data	No Data	Processor MOH Jack
3	010203	No Data	No Data	No Data	Processor MOH Jack
4	010204	No Data	No Data	No Data	Processor MOH Jack
5	010501	No Data	No Data	No Data	Processor MOH Jack
6	010502	No Data	No Data	No Data	Processor MOH Jack
7	010503	No Data	No Data	No Data	Processor MOH Jack
8	010504	No Data	No Data	No Data	Processor MOH Jack
9	010801	No Data	No Data	No Data	Processor MOH Jack
10	010802	No Data	No Data	No Data	Processor MOH Jack
11	010803	No Data	No Data	No Data	Processor MOH Jack

Table 2-26 Prog 304 Default Trunk Group

FB0	Group Number	1
FB1	Group Type	1 (Analog)
FB2	Line Type	1 (CO)
FB3	CO Service Type	DIT

Table 2-27 Prog 306 Default Trunk Type

FB0	Group Number	1
FB1	Group Type	1 (Analog)
FB2	Trunk Type	1 (CO)

Table 2-28 Prog 107 Default PAD Table Values

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
PAD Device Number	Receiver / Sender	Analog Telephone	DKT	Analog Trunk	T1 trunk	ISDN Station	ISDN Trunk	Conference Bridge	Music Source	External Paging Device	IPT1000	IPT2000/IP5000	LIPU Strata Net	BIPU Strata Net	PRI Strata Net IP	IPT2000\IP5000 on MIPU	MIPU-Strata Net IP	MIPU-SIP Trunk	Voice Mail on LVMU/GVPH
1	Analog Telephone																		0
2	DKT																		0
3	Analog Trunk																		0
4	T1 trunk						No Change to these default values												6
5	ISDN Station																		6
6	ISDN Trunk																		6
7	Conference Bridge																		0
8	Music Source																		0
9	External Paging Device																		0
10	IPT1000																		-6
11	IPT2000/IP5000																		12
12	LIPU Strata Net																		12
13	BIPU Strata Net																		0
14	PRI Strata Net IP																		3
15	IPT2000/IP5000 on MIPU																		0
16	MIPU-Strata Net IP																		0
17	MIPU-SIP Trunk																		0
18	Voice Mail on LVMU/ GVPH	0	0	0	6	6	6	0	0	0	-6	-6	-6	-6	0	-6	-6	-6	0

Note GIPU is the same as MIPU.
GIPH and LIPS are the same as LIPU.

IP Default Data for GIPH1/GIPU8/MIPU Card

The following applies when the GIPH1, GIPU8, or MIPU card is installed.

Table 2-29 Prog 161 – IP Default Data

FB No.	Parameter	R1 HW	R2 HW
FB0	Cabinet and Card Slot Number	0106	0105
FB1	IP Address	192.168.254.200	192.168.254.200
FB2	Subnet Address	255.255.255.0	255.255.255.0
FB3	Default Gateway Address	192.168.254.1	192.168.254.1

Table 2-30 Prog 304 Default Trunk Group

FB0	Group Number	7
FB1	Group Type	2 (ISDN)
FB2	Line Type	2 (TIE)
FB4	Private Service Type	QSIG

Table 2-31 Prog 306 Default Trunk Type

FB0	Group Number	4
FB1	Group Type	2 (ISDN)
FB2	Trunk Type	2 (TIE)
FB3	Service Type	2 (QSIG)

Call Monitor

Using the flexible Call Monitor button on your telephone, you can listen to the message a caller is recording in your voice mailbox. You can also answer the call and talk to the caller anytime during the message recording.

To enable Call Monitor on your telephone

1. While on hook, press the idle Call Monitor button. The button's LED flashes red.
2. Enter your voice mail password (maximum of 16 digits; numbers 0~9).
3. Press #. The password displays with ∗. The LCD now displays "Call Monitor Enabled" briefly and then displays the original information. The Call Monitor LED turns solid red indicating that the feature is enabled.

To disable Call Monitor on your telephone

- With the Call Monitor LED solid red, press Call Monitor. The Call Monitor LED turns off.

To monitor a call using Call Monitor

A flashing red Call Monitor LED indicates that a message is being recorded in voice mail.

- Using the speakerphone or handset, press Call Monitor. The Call Monitor LED lights green. You can hear the caller leaving the message, but the caller cannot hear you. The LCD displays "Monitoring Voice Mail."

To answer the call during the message recording

- To talk to the caller during the recording, press Call Monitor. The recording stops and the LED turns solid red. The LCD display indicates the extension or line to which you are connected.

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CIX40 IP Telephony 3

This chapter introduces IP telephones and Strata Net IP on the Strata CIX40 system. It includes information specific to the GIPU8, GIPH1 and MIPU cards. The subjects of IP Telephony, in general, and IP Telephone installation are covered, in detail, in the Strata CIX and MAS Installation and Maintenance Manual.

The GIPU8, GIPH and MIPU printed circuit boards (PCB) provide the interface for Toshiba IPT telephones, SIP telephones, the Strata MAS for SES and ACD, and StrataNet applications.

The GIPU8, GIPH and MIPU have an IP network connector and an RJ-11 connector to provide an RS-232 maintenance port.

The GIPU8, GIPH and MIPU must have a static public IP address or a static private IP Address.

The GIPU8 and GIPH1 have up to eight IP channels. The MIPU16 has 16 channels, and the MIPU24 has 24 channels. These channels can be used for IP Stations, SIP stations, ACD-Voice Announce, Voice Mail, Strata Net, or any mix.

The GIPU8, GIPH and MIPU operate on the network at 100 Mbps and can be connected to a fast switch router, LAN, WAN, etc. When connecting to remote IP telephones over the Internet, a VPN router is needed to circumvent Network Address Translation (NAT) and fire wall issues.

IP Telephone, SIP Telephone, SoftIPT and Strata Net IP channels require licensing. Refer to “CIX40 System Licenses” on page 1-3

Install the IP Interface Card

The CIX40 R2 system has a single card slot for the IP interface. This card can be any one of the following:

Card	IP Ports	Comments
GIPH	8	G.729A and 32 ms echo = 6 ports
GIPU8	8	Tail-length echo cancellation increased from 32 ms to 64 ms (G.711 and G.729A) No change in channel capacity with 32 or 64 ms echo cancellation.
MIPU16	16	
MIPU24	24	

Install the IP Interface PCB

GIPU8, GIPH1 or MIPU Installation

1. Ensure that the GIPU8, GIPH or MIPU is installed in the cabinet and that the card stopper is secured (see Figure 1-13).
2. Power up the system.
3. Program the CIX per the instructions in the *Strata CIX Programming Manual Vol. 1,* refer to the chapter titled “IP Telephone Programming” and “Appendix A – “Application Guide.”

Note: When the GIPH1 is configured for G.729A codec use and the echo cancel delay is set to 32 ms the card will operate as follows:

- Six resources will function as G.729A with 32 ms echo cancel delay.
- Two resources will function as G.729A with 16 ms echo cancel delay.

When the echo cancel delay is set to 16 ms or the codec is G.711 this does not apply, all channels are available.

This does not apply to the GIPU8 or MIPU.

Connect GIPU8, GIPH or MIPU to LAN or VPN Server

1. Plug one end of a straight-through CAT5/5E/6 LAN cable into the RJ45 Ethernet port on the GIPH1 in the CIX. (See Figure 1-16.)
2. Plug the other end of the LAN cable into a LAN or server jack refer to Figure 3-1. The GIPU8, GIPH or MIPU cable is a straight-through cable.

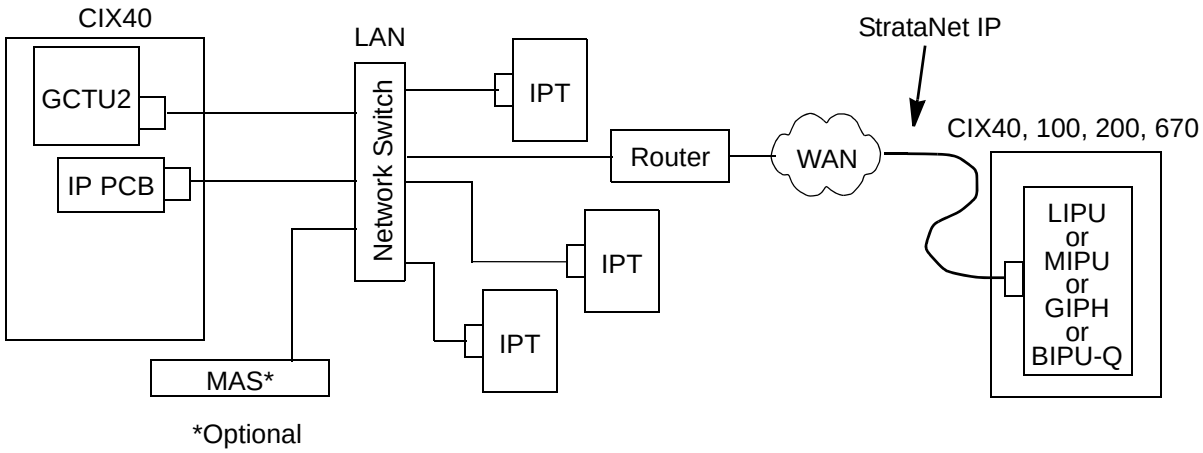

Figure 3-1 IP LAN Connections

Install IP Telephones

Install the IP Telephones and cables with the same care and considerations as any other device connected to the local network. Before installing any telephone wiring, read the following caution notes:

Power Adapter Connection

The IP Telephone (IPT) sets require external power. The power supply can be from an AC adapter or the LAN using a Power Over Ethernet (POE). POE must meet IEEE802.3af standard. Toshiba recommends the SMC6824MPE PoE switch. Refer to “Power over LAN” in the CIX and MAS Installation and Maintenance Manual.

The IPT 2000 and IP5000 series station power adapter have a 90 degree plug. This adapter plugs into the bottom of the IPT set. The right angle plug does not interfere with the tilt base or wall mounting. For desk top installation use the strain relief tab at the back of the set for the AC adapter cable.

DSS, ADM and External Speaker Control Box (BESCB)

The IPTs can each support two ADMs or three DSS modules. The station can support DSS or ADM but not a DSS and ADM. It is necessary to remove the tilt base from the IPT and ADM or DSS to Attach the brackets and cables. This is not neccessary for IP5000-series telephones. Refer to the CIX and MAS Installation and Maintenance Manual. Refer to the CIX and MAS Installation and Maintenance Manual for DSS, ADM and External Speaker Control Box installation.

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