

MPAC-18

OPERATING AND SERVICE MANUAL

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Computer Dynamics, Inc.
864-627-8800**

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Greenville, SC 29615**

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REVISION HISTORY

REV	DATE	BY	DESCRIPTION
A-01	3/13/03	R.T. Harrelson	Preliminary Release
A-02	4/03/03	R.T. Harrelson	Preliminary Release
A-03	4/21/03	R.T. Harrelson	Preliminary Release
A-04	4/23/03	R.T. Harrelson	Preliminary Release
A-05	4/30/03	R.T. Harrelson	Preliminary Release
A-06	5/16/03	R.T. Harrelson	Preliminary Release
A-07	5/16/03	R.T. Harrelson	Preliminary Release
A-08	5/24/2004	Allen Gaulden	10Base2 Option

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INTRODUCTION

The DP027010 is a military computer designed primarily for use as a hardware workstation which runs on the Windows ® operating system. This military computer is a fully self-contained PC-compatible computer with a built-in flat screen display and resistive touch screen. The video is provided by a Chips and Technologies 65555 video processor on the PCI-FPCARD. The DP027010 features include a Pentium III™ CPU to 850 MHz, 10Base2 Ethernet, 512 Mbytes with one double sided non-registered DIMM, and Universal Serial Bus (USB) ports. The unit is housed in a rugged metal case. The DP027010 military computers are manufactured with an auto ranging main power input unit, which allows operation from 90 to 138 VAC. The unit is supplied completely assembled and requires only mounting and connecting.

Before powering up your system for the first time, you should refer to the procedures in the first section of this manual, which contain information you will need to set up the operating system and network communications.

Interchangeable terms

Com 1	Com A
Com 2	Com B
Com 3	Com C
Com 4	Com D
LPT-1	Printer port or Parallel

I/O features

The DP027010 includes the following jacks: Com 2&3, 10Base2 pairs RX1&TX1, RX2&TX2, LPT-1, USB1&2, and the combined keyboard and mouse. The Ethernet I/O is designed to provide a dual 10Base2 interface to a network.

Warnings, Cautions, and Notes

as Used in this Publication

Warning

Warning notices are used in this publication to emphasize that hazardous voltages, currents, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use.

In situations where inattention could cause either personal injury or damage to equipment, a Warning notice is used.

Caution

Caution notices are used where equipment might be damaged if care is not taken.

Note

Notes merely call attention to information that is especially significant to understanding and operating the equipment.

This document is based on information available at the time of its publication. While efforts have been made to be accurate, the information contained herein does not purport to cover all details or variations in hardware or software, nor to provide for every possible contingency in connection with installation, operation, or maintenance. Features may be described herein which are not present in all hardware and software systems. Computer Dynamics assumes no obligation of notice to holders of this document with respect to changes subsequently made. Computer Dynamics makes no representation or warranty, expressed, implied, or statutory with respect to, and assumes no responsibility for the accuracy, completeness, sufficiency, or usefulness of the information contained herein. No warranties of merchantability or fitness for purpose shall apply.

Feature Summary

When you purchase a DP027010, you receive:

- Military computer with the operating system software installed.
- Installation hardware (mounting hardware)
- Microsoft Windows documentation, software distribution, Certificate of Authenticity and license agreement
- Operating and service manual

Standard Features & I/O

Feature	Description
Microsoft Windows	Operating system
CPU	Intel PIII 850 Mhz
Cache	128K L2
Hard disk	One, 40GB
Floppy disk drive	One, Side access 3.5 inch, 1.44MB
RAM	One, 512MB with non-registered, non-ECC DIMMs, Maximum installed by factory.
Display	18.1" Color Active Matrix TFT –XGA 1280 x 1024 resolution
Parallel ports	One, bottom access (LPT1), IEEE1284
Serial port	Two, bottom access (RS232 & 485)
Touch Screen	High Resolution Resistive on com 3
USB ports	Two, bottom access USB ports.
Communications	Two, 10Base2 Ethernet
Keyboard port/Mouse port	One, DB9, See pinout Table 2
CDRW-ROM	One, Side access
I/O	Location
COM1	Internal (Touch screen)
COM2 as RS232	Bottom access
COM3 as either RS232 or RS485	Bottom access
LPT-1 (enhanced parallel port)	Bottom access
DB9 (Keyboard and Mouse)	Bottom access
USB 1&2	Bottom access
Dual Ethernet (10Base2)	Bottom access
PCI expansion slot	Two, Internal, Factory option only

Installation Guidelines

General:

This section provides general information needed to install the DP027010. The general guidelines provided include information pertinent to grounding, mounting, and minimum clearances.

This computer system contains static sensitive devices. Proper static device handling procedures must be followed.

There are no user-serviceable parts in this computer system. Opening or disassembly of the computer enclosure by persons not certified by CDI will void the warranty.

Installation Sequence Overview:

- Remove computer from shipping carton, retain carton if desired.
- Remove protective plastic from computer
- Remove and store the Windows installation CD and installation key.
- Perform a visual inspection for damage.
- Install bracket, ensure required clearances are maintained
- Install chassis ground strap
- Install power and Ethernet cables

Adequate airflow around the exterior of the unit is important to the interior temperature of the unit. Fans are used to create airflow through the military computer ensuring that a correct working temperature is maintained. One of the fans is located on top of the CPU chip and is used to cool the processor. Another fan is built into the power supply housing and blows air out of the unit. Another fan is located on the rear chassis cover and blows air out of the cabinet.

Grounding:

This computer system is equipped with a three-wire power cable. When connected to an appropriate AC power receptacle, this cable grounds the computer chassis. (Signal grounds are isolated from chassis ground). The AC line plug shall be inserted only in a receptacle provided with a protective earth contact. A ground stud is provided for optimum grounding, and is required for shipboard installation. Use 12 AWG stranded wire or larger, a grounding strap (or braid) is highly recommended. The computer chassis ground stud is ¼ inch diameter, use an appropriate size terminal lug and lockwasher.

Bulkhead Mounting:

This computer system is designed for bulkhead mounting by way of a bracket provided for use with this computer. Mounting brackets are available in two styles: Pivot and non-pivot. Although each bracket has the same mounting bolt pattern, the Pivot style bracket requires greater clearance in the front. Refer to Figures 1 through 5 for mounting bolt patterns and sizes for each bracket. During installation the bracket is mounted first, then the computer is mounted to the bracket. The bracket is designed to mount with four 3/8"x16 SAE grade 8 bolts, including washer and lock washer. The bolts are tightened to 35 ft/lbs. The bracket should be mounted flat and level. See Figure 3 for mounting of computer system to the appropriate bracket.

Once the bracket is mounted, the computer is mounted to the bracket. Use the four provided allen screws, and combine with a washer and lock washer (not included). Two people are required to mount

the computer, the computer is held level while the allen screws are installed through the bracket. Tighten the allen screws to 20-25 ft/lbs.

Clearances:

Airflow: Inlets and outlets must have at least 1 inch (25mm) around them and not be obstructed for adequate airflow to maintain the correct working temperature. In a military environment, the panel into which the unit is mounted should provide protection from dust.

Cabling: All input/output (I/O) connections are via bottom access. At least 8 inches (20cm) of unobstructed space is required at the bottom of the computer for unrestricted cable connection. See figures 9 and 10 for bottom connector panel layout.

Brackets: See figures 3 and 4 for proper clearances for each bracket assembly. An access area of approximately 4 inches (10 cm) to the sides is required in the area of the allen screws that mount the computer to the bracket.

Power-up and Software Installation

This section contains information you need to set up your DP027010 military computer's operating system and network communications.

Installation

- Before you attempt to power up the system for the first time, inspect the unit for loose or damaged components. Applying power to a system with damaged components may cause additional damage.
- Before you power up your system, you may want to attach a standard PS/2 keyboard and mouse to the external ports on the military computer. Most configuration activities that you perform on the unit can be more easily completed using a keyboard and mouse.

Caution

Do not connect or disconnect external devices, such as a printer, keyboard or a mouse while the unit is powered on. Failure to observe this precaution could result in damage to the equipment.

System Startup

During power up, the processor will run its normal diagnostic checks and indicate the presence of any errors with screen prompts .

1. Plug in the keyboard and mouse (if available.)
2. Connect Ethernet cable(s)
3. Connect power cord
4. Apply power to unit
5. Read license agreement
6. TAB to your choice and press ENTER.
7. Press ENTER to start the Windows Setup
8. Type your name
9. Press the TAB key and type your company name
10. Press ENTER
11. Enter your Windows Authentication number found on either your Windows manual or affixed to the right side of the computer. You will need to use the TAB key to get to each number field. If correct, press ENTER.

Note

Computer names must be less than or equal to ten characters to run some types of software.

12. Enter a Computer name. This name must be unique to other computers on the same network. Press ENTER.

Note

Your system has been set up to enable auto logon. Auto logon allows the system to boot into Windows without your having to use a keyboard to press CTL-ALT-DEL.

13. You will be prompted for a password.

- Login Recommendation
 - If you type **admin** as your Administrator password, your military computer will automatically log on as Administrator.
 - Log onto the system as Administrator when you power up the system. Doing so eliminates the requirement to log on to DP027010 when you run any project that requires a user named Administrator. All DP027010 projects are configured with an Administrator user by default
 - To use the auto logon feature, type **admin** for the password. Press the TAB key and type **admin** in the Confirm Password box. Press ENTER.
 - To assign a password, type in a password, press the TAB key, and type the password in the Confirm Password box. Press ENTER.

14. To skip the password, press ENTER

15. Press ENTER to continue with the Windows Setup.

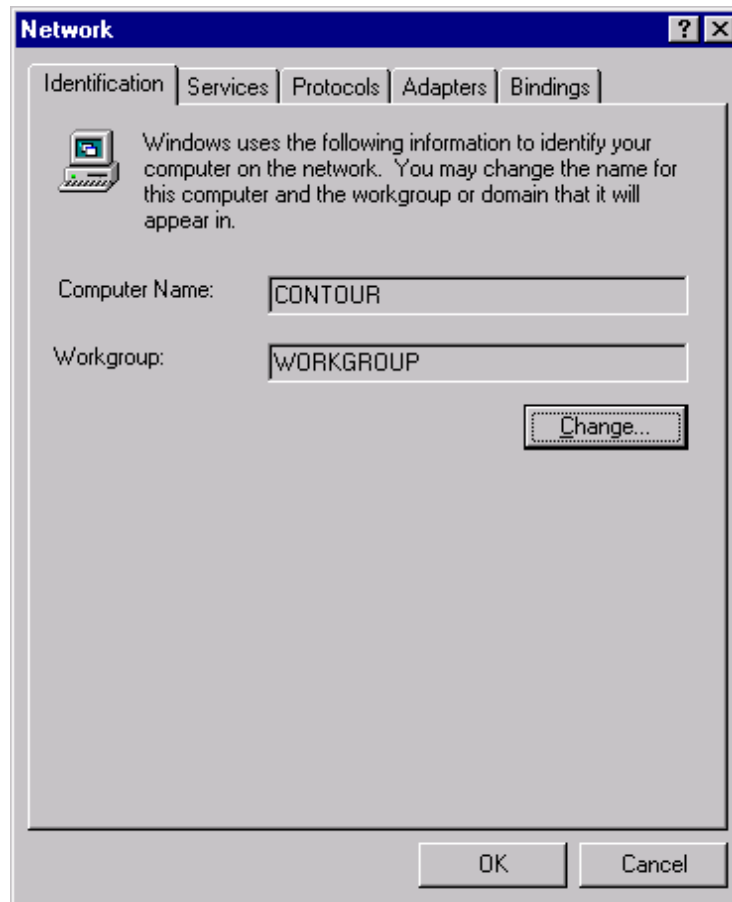
16. After completing the network setup, the system will copy files over and finalize its setup.

17. At the end of the setup process, you will be asked to reboot the system. Press ENTER.

Configuring the Military Computer to Run on a Microsoft Network

Before configuring your new Display Station for a network, you should consult your network administrator. Duplicate TCP/IP addresses and duplicate computer names on the same network can cause network problems.

1. Click the Start Icon, then click Settings, and Control Panel.
2. In the Control panel window, double click the Network icon. The Network dialog box appears.

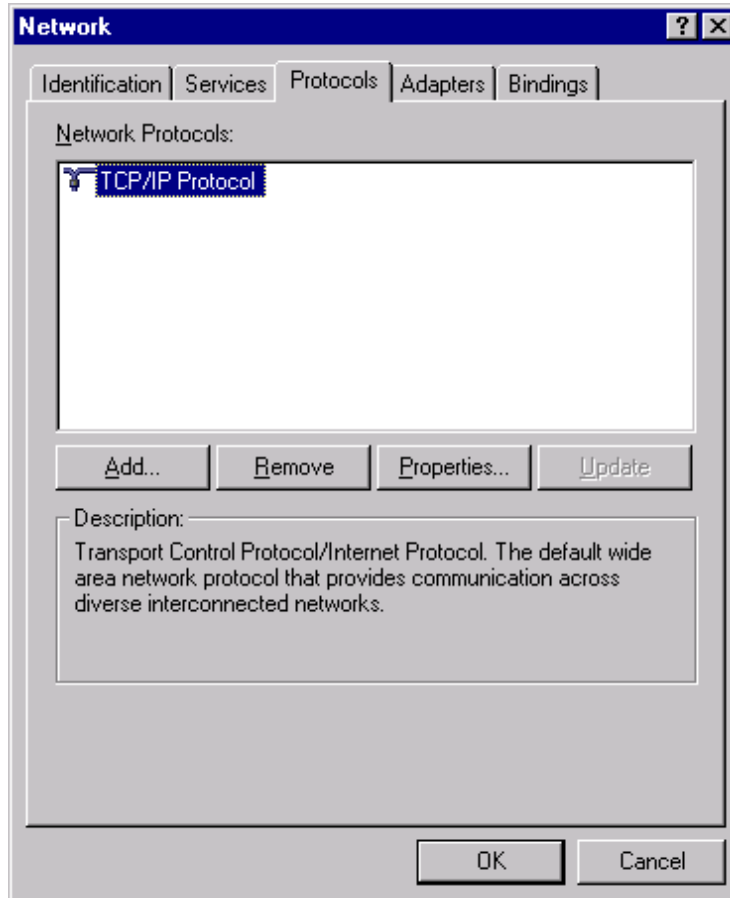


3. On the Identification tab, click Change. You will need to verify your Computer Name (entered at machine startup) and Workgroup name.

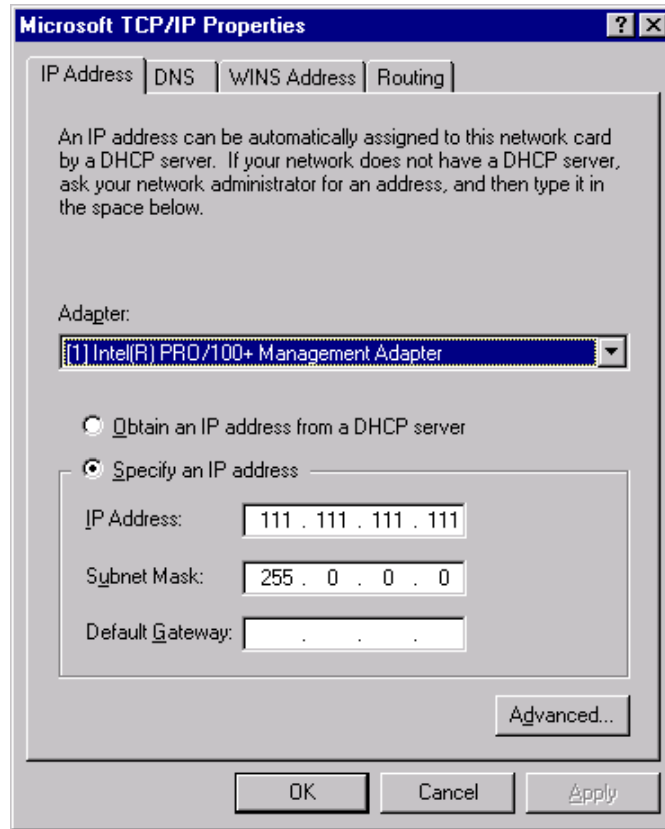
Note

Computer names should be less than or equal to ten characters to run some software programs. Each computer on a network must have a unique name.

4. To modify the TCP/IP properties,
 - A. Go to the Protocols Tab, highlight TCP/IP protocol, and click Properties.



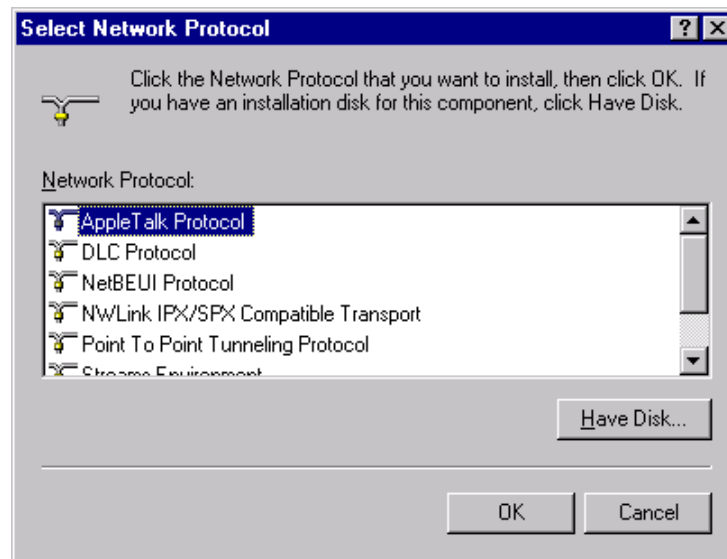
- B. In the Microsoft TCP/IP Properties, change the Address from 111.111.111.111 to a unique address and change the subnet mask from 255.0.0.0 to your subnet mask. If your network's IP addresses are controlled by a DHCP server, change the setting from Specify an IP address to Obtain an IP address from a DHCP Server.



Note

The factory setting for the IP is 111.111.111.111 and for the Subnet is 255.0.0.0. If necessary, consult your network engineer to select appropriate addresses.

5. To add other protocols such as NetBEUI, on the Protocols tab of the Network dialog box, click Add. A list of available protocols will appear. Choose the protocol you wish to install and click OK. The system may ask where the Windows Setup files are located. They are in the C:\i386\ directory.

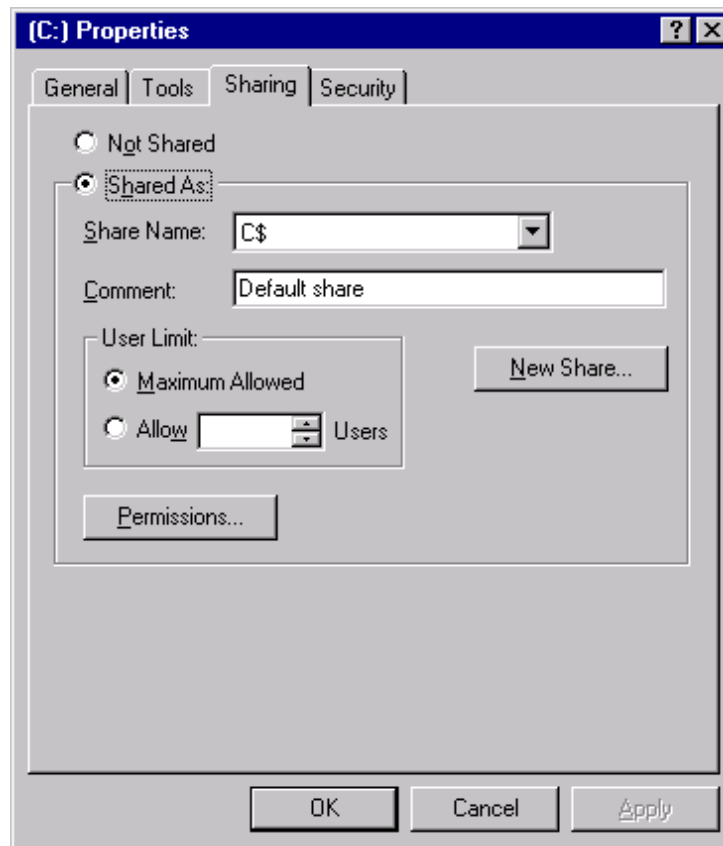


Note

It is recommended that after the system accesses the original Windows install files, the Windows Service Pack be reinstalled to update any files that were added or overwritten.

6. When you have finished setting up the Network, click OK in the Network dialog box. Click Yes to reboot your system now.

7. The network shares for the system have been left at their default administrative settings. To modify them, double click My Computer on the desktop, highlight C:, and view the drive's properties by clicking File, Properties. Select the Sharing tab.



Installing Application Software

The Windows operating system is loaded onto the military computer at manufacture. If it is necessary to reload software, follow the instructions in the documentation supplied with the software.

Directory Structure

The contents of the military computer hard drive, as shipped from CDI are listed below.

C:\i386	Windows OS CD
C:\Drivers\Touch	Touch screen drivers
C:\Drivers\Ethernet	Network drivers
C:\SP(X)	Service pack

Note

If you reload any Windows component requiring files, such as a network driver, you must reload the latest service pack.

Warning

Before attempting an Image Recovery on your unit, make sure to record all critical settings and conduct a full back up of all software projects and critical documents. You will also need to have your application software registration and Microsoft Authorization Numbers handy.

Caution

To avoid damaging files, always shut down Windows software before removing power from your DP027010.

To shut down Windows OS software, select Shut Down from the Start menu.

Hardware

This section describes the procedures for the safe location and securing of the DP027010 military computer. The DP027010 military computers have been designed to ensure simple installation of the system.

Power Supply Section

The DP027010 is powered by a 120V ATX switching power supply. The AC input protection consists of an integrated double pole, single throw switch/circuit breaker combination for both the line and neutral feed.

Circuit Breaker and ATX Switch

The circuit breaker located on the bottom panel will trip at 10 Amps nominal. The ATX switch located on this panel will energize the system when depressed. The ATX switch will also shut the unit off if depressed for approximately 3 seconds, a momentary activation should have no effect on operation.

Single Board Computer (SBC)P3/133

At the heart of the DP027010 is a P3/133 SBC with an 850 Mhz Intel Pentium III CPU. The SBC has one memory socket loaded with 512Mb of PC133 memory.

TFT Graphic Display System

The standard DP027010 military computer includes an 18.1 inch color TFT (XGA resolution 1280x1024 maximum) screen. The flat screen display has the following features:

- High Luminance
- Wide angle viewing
- A built-in back light with a long life back light tube (equal to or greater than 40,000 hrs),

Touch Screen

The DP027010 includes a resistive overlay touch screen on the flat panel display, which provides an efficient and reliable method of entering information. The screen responds to the touch of your finger with or without a glove.

Touch Screen Driver for Windows

The touch screen of the DP027010 is internally connected to COM1. Parameters must be set within the driver so that they match the hardware settings. If a card is installed that has settings that conflict with those of the COM 1 serial port, that card's configuration must change. The factory default settings are:

COM Port = 1
Address = 03F8 Hex
Interrupt = 4

These parameters are written into the system registry file by the driver setup utility. The driver is installed, configured and calibrated at the time of manufacture.

System Peripherals

The DP027010 military computer system has a single hard disk drive. The drive is located on the inside of the unit. The disk drive has a standard EIDE/ATA-2 interface. The standard size is 40GB or larger.

Jacks

This section describes the connector layout and cabling requirements on the standard DP027010 military computer. The DP027010 was designed for bulkhead mounting. The I/O ports are conveniently mounted on the bottom surface of the unit. The system has network capability by way of one Ethernet interface, which consists of two pairs of RX/TX 10 Base 2. The copper interface uses the Trompeter ADBJ20-E1-

BJ79 jacks. The I/O plate also includes a DB9 female jack for the keyboard and mouse connections. Two male DB9 jacks are present for serial communications these are COM 2 as an RS232 interface and COM 3, which is configurable as either RS232 or RS485 by the BIOS settings. An industry standard DB25 parallel port is also provided.

Communication connectors are provided from the main CPU motherboard. Some of the CPU motherboard connectors are available on the Bottom Panel.

- Keyboard/mouse port (bottom access)
- Two serial ports, COM2 and COM3 (bottom access).
- Parallel port, LPT-1 (bottom access).
- Two USB ports (bottom access).
- Ethernet 10 Base 2 (bottom access)

Power Input

DP027010 military computers are powered by an internal, auto-ranging AC power supply unit that accepts 85 to 135 VAC input ranges.

The power supply unit houses an integral ventilation fan that provides cooling for the power supply. There are no user-serviceable fuses.

Warning

For all equipment that is connected to a power outlet, the socket outlet shall be installed near the equipment and shall be easily accessible.

Caution

External devices (printer, external disk drive etc.) should not be powered up when connecting to ports.

USB Ports

Two USB ports are located on the bottom access panel of the unit. The SBC-PIII provides an interface for two USB 1.0 Ports for Serial Transfers at 1.5 or 12 Mbit/sec. The USB interface supports Legacy Keyboard and Mouse Software with USB-Based Keyboard and Mouse connections. The USB interface Complies with UHCI Design Guide, Revision 1.1 interface. The connector is a 5 x 2 straight 0.1" center header. A Dual rear bracket connector compatible with the USB Host Cable is available from Computer Dynamics.

Keyboard/Mouse Port

A DB9 connector is located on the bottom access panel. This port is labeled accordingly. This temporary connection is intended to be used for such things as initial setup, downloading data, uploading software, etc.

Printer Port LPT-1

A 25-pin D-type female printer port (LPT-1) connector is available on the bottom access panel. The port is labeled accordingly. The LPT-1 is a Multi-mode high performance parallel port with base address of 0X0100h-0X0FFCh, 11 IRQ and 4 DMA options. In standard mode it provides bi-directional SPP, in enhanced mode it is EPP V1.7 and EPP V1.9 compatible, and in high-speed mode is ECP, IEEE1284 compliant.

Serial Communication Ports

The COM2 and COM3 serial ports are available on the bottom panel. The COM1 serial port is used by the touchscreen and is not accessible to the user. The standard 9-pin D-sub connector pin out is shown in the Appendix. COM 3 can be configured as either RS-422/RS-485. The pin definitions for COM 3 change as shown in the Appendix. Connections are based on signals at the DB-9 end of cable.

Floppy & CD-ROM

The floppy and CD-ROM drives are located behind the cover on the right side of the unit. Access to these drives can be obtained by removal of three Phillips screws.

Networking

Communications

Your military computer has been configured with networking components that enable you to establish new networks or connect to existing networks easily. If you intend to use Microsoft NetBEUI, TCP/IP, or Direct Cable Connection, some minimal setup changes are required before you can use the system for network applications. In Windows systems, these settings are changed using the Network application in the Control Panel program group.

Installed Network Components

Network Component	Comments
PCI Network Adapter	Automatically configured in system
TCP/IP	Default settings must be changed before connecting to an existing network. Contact your network administrator for appropriate settings.
NetBEUI	Default settings must be changed before connecting to an existing network. Contact your network administrator for appropriate settings.
System Identification	Computer Name: Each system is uniquely identified by its serial number and can be renamed before adding it to an existing network Workgroup: The default workgroup is Workgroup . This should be renamed before adding it to an existing network.

Caution

The IP Address must be changed to a unique address. If it is not changed, conflicts could occur on your network.

BIOS Settings

It is normally not necessary to change the hardware configuration settings in the CMOS memory. If settings become corrupted, follow the procedures here to reload the factory configuration.

1. Power down the computer, connect a keyboard and turn on the power. Enter the Setup mode by pressing the F2 key when prompted during the computer power-up sequence. The main BIOS setup utility screen will appear offering several options for changing settings.
2. In the EXIT menu - Load BIOS defaults.8. In the ADVANCED menu, select Installed OS. Change to "Other."
3. Arrow to IO Device Configuration. Press ENTER.
4. Make the following menu selections:

USB	Enable
Audio	Enable
COM: A (COM1 touch screen)	3F8 / IRQ 4
COM: B (COM2, on bottom)	2F8 / IRQ3
COM: C (COM3 on bottom)	3E8 / IRQ 9
COM: D (internal)	Disabled
LPT:A (LPT1 on bottom)	ECP / 378 / IRQ7 / DMA3

5. To save your changes, press Esc. In the Exit menu, select Exit Saving Changes.

Diagnostics and Troubleshooting

This section consists of "Self-Test Diagnostics," "Troubleshooting," and "Corrective Actions." "Self-Test Diagnostics," describes how to respond to errors that could be detected by the automatic self-test that is performed each time the DP027010 military computer powers up. "Troubleshooting" contains tables of symptoms, their possible causes, and recommended corrective actions. "Corrective Actions" contains detailed procedures that are too lengthy to include in the Troubleshooting tables.

Self-Test Diagnostics

The computer automatically performs self-test diagnostics each time it is powered up. The self-test consists of a series of checks that verify correct performance of the computer hardware. When the self-test is being performed, you will see the message XXXX KB OK displayed on the screen, where XXXX is a number that increases until it matches the amount of usable memory.

System Test and Initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will see an error message on the screen. There are two kinds of errors: fatal and non-fatal. If a non-fatal error occurs, the system can usually continue the boot up sequence. Non-fatal error messages usually appear on the screen with the following instruction:

press <F1> to RESUME

Write down the message and press the F1 key to continue the boot-up sequence.

System Configuration Verification

These routines check the current system configuration against the values stored in the CMOS memory. If they don't match, the program will generate an error message. To correct this condition, you will need to run the BIOS setup program and correct the configuration information in memory.

There are three situations in which you might need to change the CMOS settings:

1. You are starting your system for the first time.
2. You have changed the hardware attached to your system.
3. The CMOS memory had lost power and the configuration information has been erased.

Maintenance

Cleaning: The touch screen should only be cleaned with Chemtronics (part # ES 1668) cleaner and a soft lint free cloth. The touch screen should be moistened with the cleaner, avoid rubbing the touch screen with a dry cloth. The touch screen can easily be scratched, it is very important to not to use excessive force or sharp objects.

Inspections: Quarterly inspections are recommended to ensure that vent holes on the back of the enclosure are unobstructed.

Troubleshooting

Power-up

Symptom	Possible Causes	Solution
Computer does not power up.	Power not on (PWR indicator is not lit or display completely dark).	Make sure that computer is plugged in. Make sure that power source is functioning properly.
Display is blank (PWR indicator is lighted).	See "Display" topic in this Section	See "Display" topic in this Section
Non-System disk or disk error message displayed.	Disk in floppy disk drive.	Remove floppy disk and then reboot or cycle power .
Safe Recovery Error message displayed.	Occurs on initial power up if the unit is accidentally turned off without first shutting down the Windows software.	The computer will power up normally.
Memory count during power-up self-test is incorrect.	Optional DIMM is installed incorrectly or is incompatible with the DP027010 military computer CPU.	Make sure that the appropriate memory is installed correctly.
CMOS checksum error — Defaults loaded CMOS battery failed message displayed.	CMOS battery failure.	This battery has a lifetime of up to 10 years under normal operating conditions. For more information, see "CMOS Checksum Error" topic in this section.
A screen appears just after power-up, or just after reset, which has the title "CMOS Setup Utility."	The F2 key has been accidentally pressed.	Cycle power again. The computer will power up normally.
The computer has reset even though the power was not interrupted.	The CTRL-ALT-DEL keys were pressed twice at the same time.	This should never be done, unless you are attempting to reset the computer.
A:> appears instead of software.	A system floppy disk is inserted.	Remove disk and cycle power.

Display

Symptom	Possible Causes	Solution
Characters are dim.	Computer screen is in direct light.	Change lighting.
Display is blank (PWR indicator is lit).	Screen temperature is outside operating range.	If computer is in direct sunlight, move it and allow it to cool.
	Computer is set up for invalid video mode.	Reboot. Select VGA Mode
	Screen saver is active.	Touch the touch screen.

Memory

Symptom	Possible Causes	Solution
Memory count during power-up self-test is incorrect.	Optional DIMM is installed incorrectly or is incompatible with the DP027010 military computer CPU.	Make sure that the appropriate memory is installed correctly.
Out of Memory message is displayed or insufficient memory error occurs during operation.	System ran out of memory for the application.	Check the memory requirements for the application. (Refer to the application documentation.)
	Too many terminate and stay resident (TSR) programs running.	Modify the startup folder to use only those TSR applications that are really needed.

External PS/2 Mouse

Symptom	Possible Causes	Solution
Cursor does not respond to mouse movement	Mouse not plugged in.	Power down computer. Plug mouse into mouse port on computer and reboot.
	The type of mouse is not supported.	Use a PS/2 mouse.
	System is busy.	Press CTRL-ALT-DELETE to view task list.
	Mouse not detected.	Restart computer with external mouse connected.

Keyboard

Symptom	Possible Causes	Solution
External keyboard locks up	The type of keyboard is not supported.	Use PS/2 compatible keyboard
	Keyboard not plugged into keyboard port on the computer.	Plug keyboard in. (Power down computer first.)
	System is busy.	Press CTRL-ALT-DELETE to view task list.

Network Communications

Symptom	Possible Causes	Solution
Conflicts on network.	IP Address not unique.	Change the IP address to a unique address. (Contact your system administrator if this or other settings need to be changed.)

Printing

Symptom	Possible Causes	Solution
Printer will not turn on.	Cables not connected properly. Printer power cord not plugged in.	Ensure that the cables are properly connected and that the power cord is connected to the electrical outlet.
Printer will not print.	Printer is not turned on.	Turn on the printer
	Printer is not online.	Set the printer to online.
	The device drivers for your application are not installed.	Install the correct printer drivers for your application in Windows.
	Printer that is set up for a network is not connected to the network.	Connect the printer to the network.
	Printer cable is too long, unshielded, or defective.	Replace the cable.
Printer is offline.	Paper tray is empty.	Fill the paper tray with paper. Set printer to online.
Printer prints garbled information.	Correct printer drivers not installed.	Install the correct printer driver.
	Cable is not connected properly.	Ensure that the printer cable is connected properly to the computer.
	Problem specific to printer.	Run a printer self-test. Refer to the documentation provided with your printer for instructions. If the self-test fails, the problem is printer-specific. The printing section of the software documentation and in Windows online Help may also be helpful.

Figure 1. Front Plan View

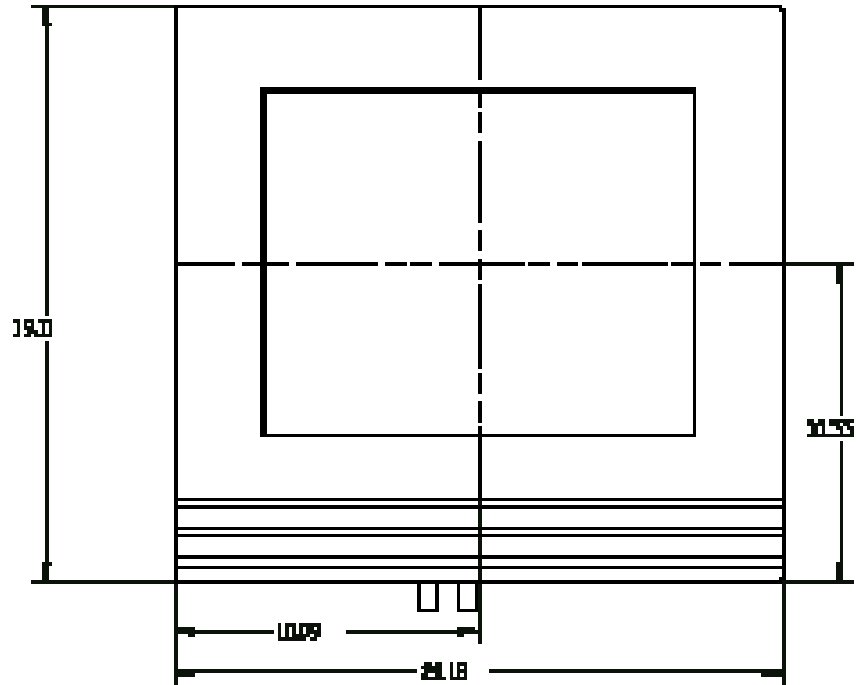
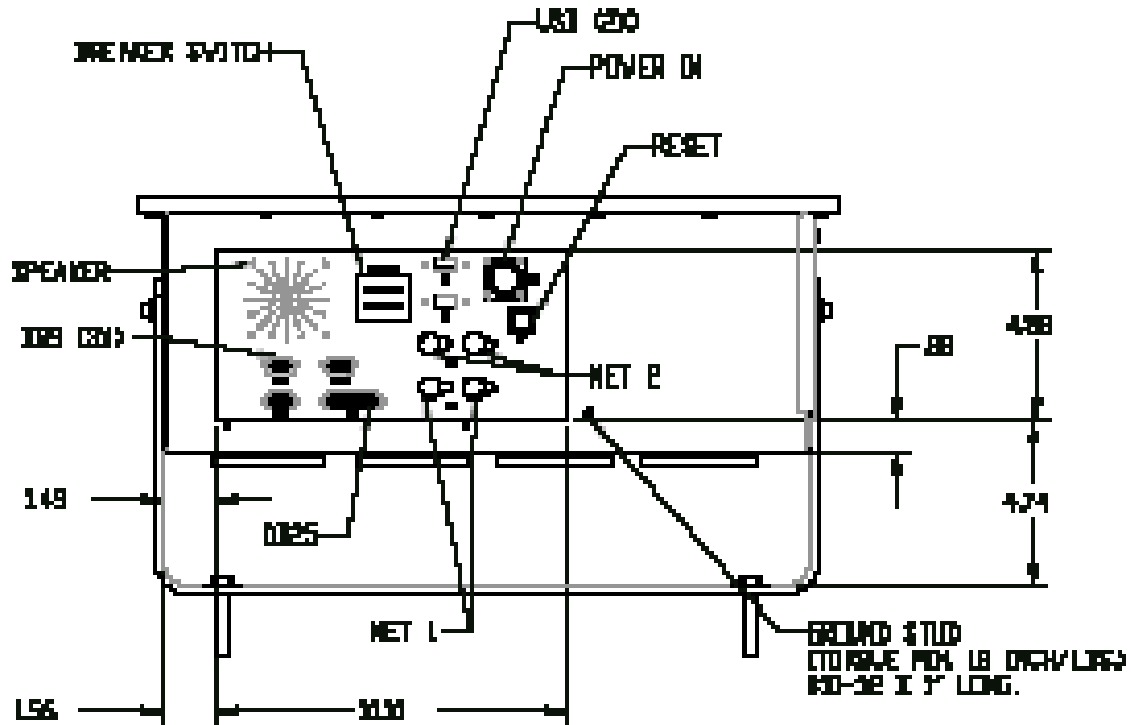


Figure 2. Bottom Plan View



See the Appendix for I/O panel layout

Figure 3. Side Plan View

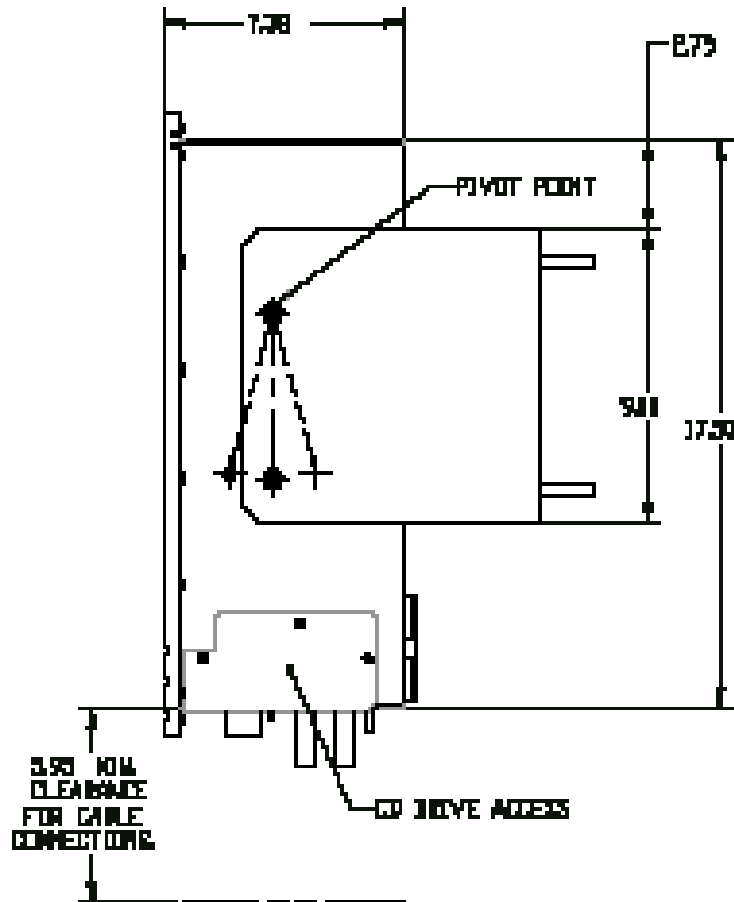


Figure 4. Top Plan View

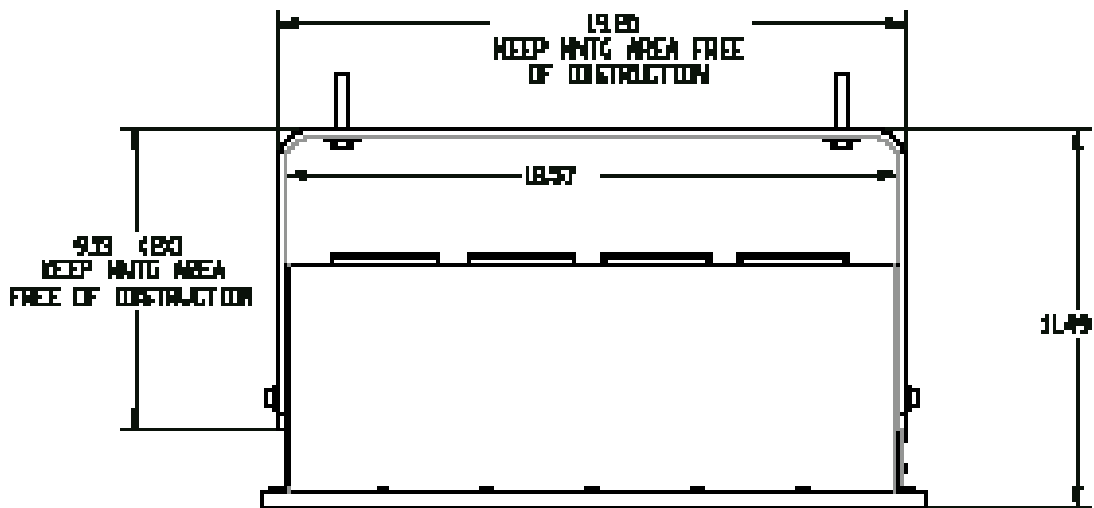


Figure 5. Back Plan View

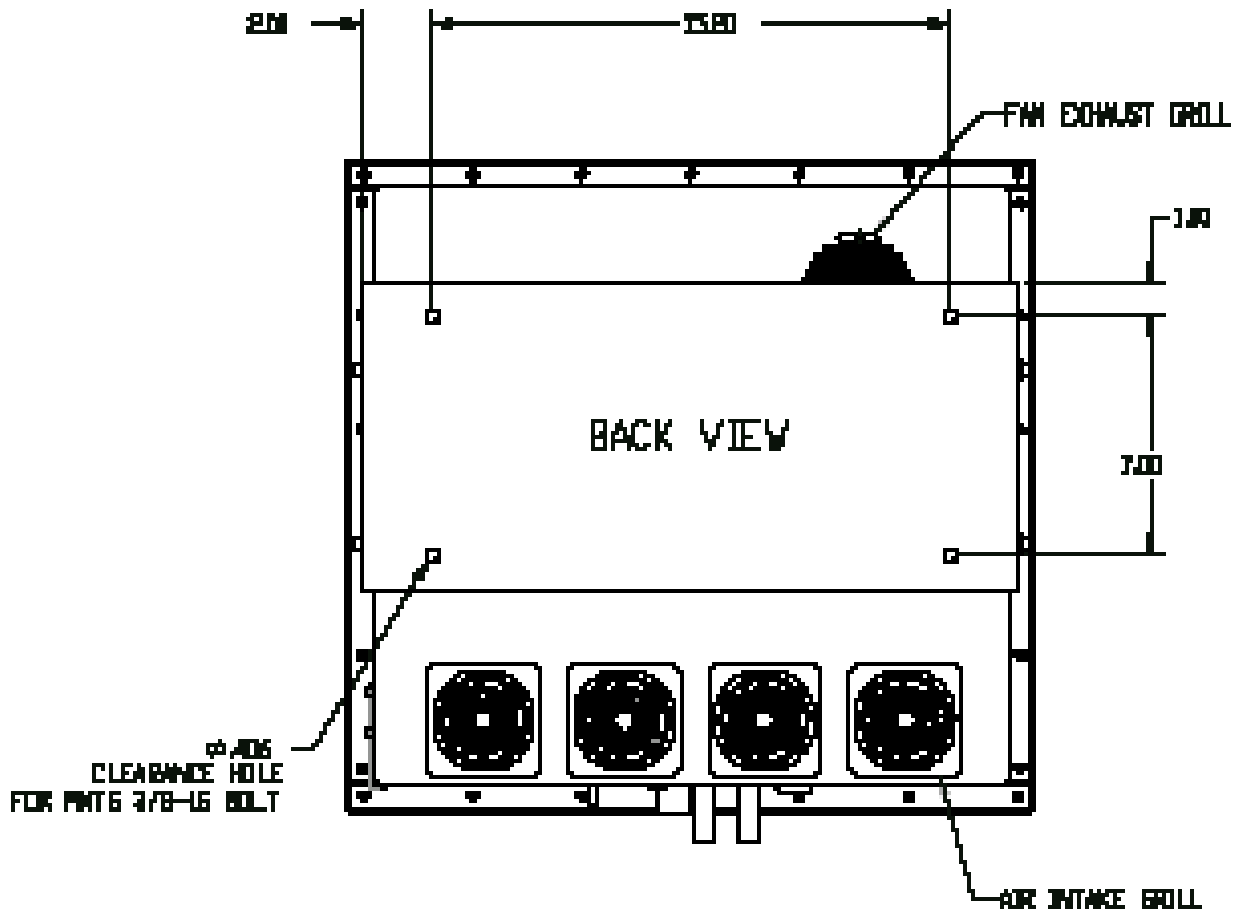
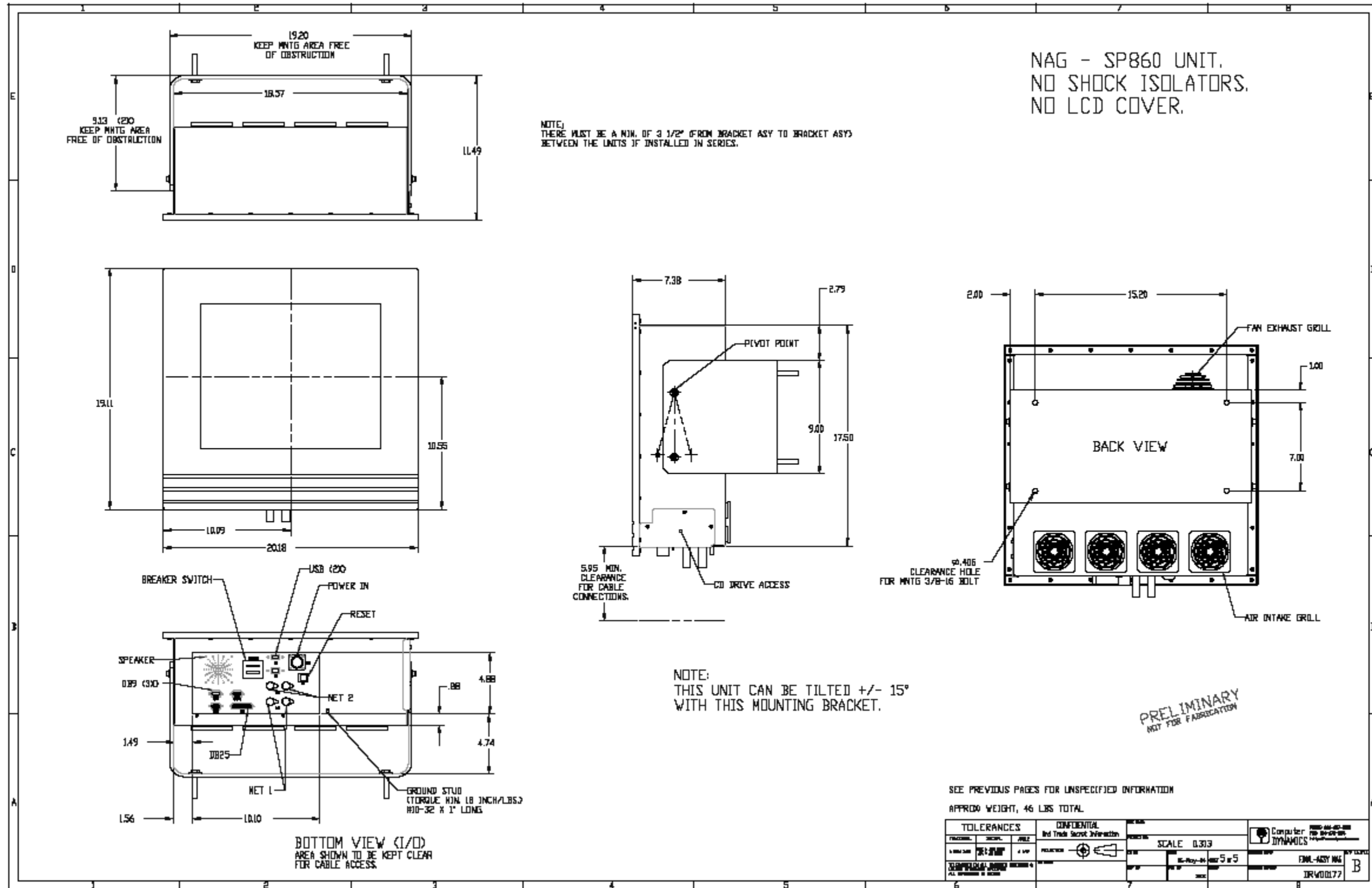


Figure 6. Installation Diagram



Specifications

Information presented here is based on standard product, for extreme environment requirements, contact your Computer Dynamics, Inc. Applications Engineer. Product may have to meet other agency requirements depending on application. Product may meet agencies requirements but not be officially approved by that agency under Computer Dynamics, Inc.

Power Requirements	90 to 132VAC Single Phase
Weight	46 lbs
Physical Dimensions	19.11H x 24.07W x 11.49D inches

Table 1 Unit Specifications

Vertical Connectors and Strapping Fields

Single row connectors are numbered sequentially from top to bottom or one end to the other. Double row connectors are numbered with all even numbers on one side of the connector and all odd numbers on the other side.

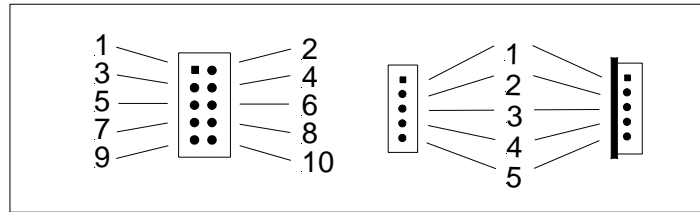


Figure 7. Pin configuration

The SBC-PIII provides an industry standard RJ-45 connector for 10 Mb/s and 100 Mb/s operation. It supports N-way auto-negotiation, full duplex flow control in compliance with IEEE 802.3x. It uses PCI bus master data transfers with programmable PCI burst size. Includes 16K boot ROM, interface to 9346 (64 x 16-bit EEPROM) for storage of resource configuration and ID parameters and large independent Rx and Tx FIFOs.

Three levels of power down modes: sleep, power-down with internal clock running, and power-down with internal clock halted. Digital and Analog loopback capability. Unshielded twisted pair (UTP) cables connect the SBC-PIII to other computers, hubs and bulkhead connectors. SBC-PIII supports most popular Ethernet networks. The Ethernet Controller option used on SBC-PIII is a "Plug and Play" device and resources can be set by program control. The exact resource utilization varies with system configuration. The Ethernet controller will "seek" available resources. In addition, the Ethernet Controller can be disabled through user settings in the BIOS Setup and in the Windows™ Control Panel | System | Device Manager.

The Advanced Power Management feature minimizes power usage in Normal operation, Standby (Sleep) modes and Panel-Off Power-Saving Mode. Offers Flexible On-chip Activity Timer facilitating ordered shutdown of the display system. VESA Standards supported in Panel-Off Power-Saving Mode.

VIDEO INTERFACE

The SBC-PIII design is a highly integrated design Flat Panel and CRT GUI Accelerator, with Multimedia Engine, Palette/DAC, and Clock Synthesizer. Includes hardware Acceleration, optimized for Windows™ BitBLT format, 64-bit Graphics Engine, System-to-Screen and Screen-to-Screen BitBLT. Video Acceleration with source and destination Transparent BLT, instant Full Screen Page Flip and read back of CRT Scan line counters. Advanced Power Management feature minimizes power usage with VESA Standards supported.

Appendix I/O:

I/O Layout and Pinout Configuration

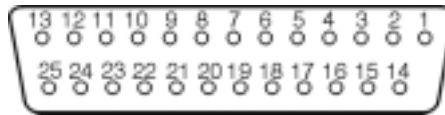
Figure 8. I/O Panel.

INSERT PICTURE AFTER FIRST BUILD

Table 2 Keyboard Jack

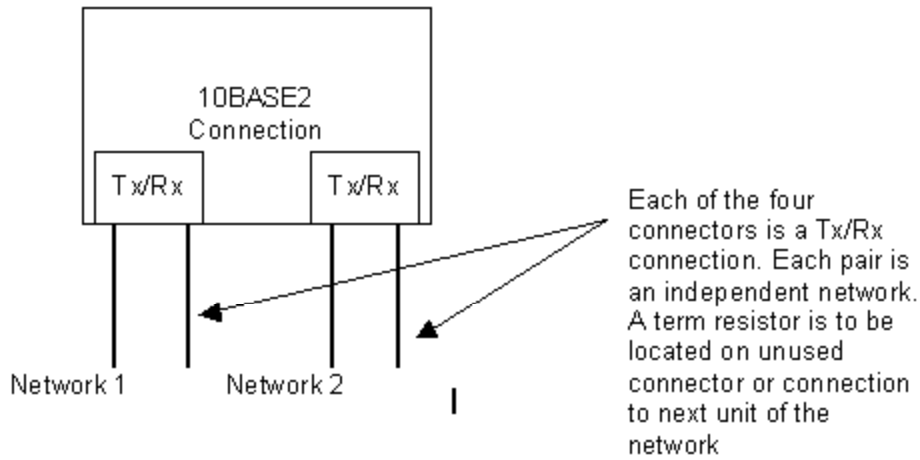
DB9 Mouse/Keyboard	Assignment
Pin 1	GND
Pin 2	Keyboard GND
Pin 3	Keyboard +V
Pin 4	Keyboard DAT
Pin 5	Mouse CLK
Pin 6	Keyboard CLK
Pin 7	Mouse DAT
Pin 8	Mouse GND
Pin 9	Mouse +V

Table 3 Parallel (LPT-1) Jack



Pin	Assignment	Signal direction from computer	Pin	Assignment	Signal direction from computer
1	Strobe	in/out	10	Acknowledge	in
2	Data Bit 0	in/out	11	Busy	in
3	Data Bit 1	in/out	12	Paper End	in
4	Data Bit 2	in/out	13	Select Out	in
5	Data Bit 3	in/out	14	Auto Feed XT	out
6	Data Bit 4	in/out	15	Error	in
7	Data Bit 5	in/out	16	Initialize Printer	out
8	Data Bit 6	in/out	17	Select In (from Printer)	out
9	Data Bit 7	in/out	18 to 25	Ground	GND

Table 4 Ethernet Jacks



Ethernet	Assignment	Direction	Ethernet	Assignment	Direction
Con 1	Tx	Output	Con 1	Tx	Output
Con 2	Rx	Input	Con 2	Rx	Input

Table 5 Power Jack

Pin	Function
Pin A	
Pin B	120 V
Pin C	Gnd
Pin D	
Pin E	Rtn

Table 6 USB Jack

Pin	Function
1	+5V fused
2	Port 2 -
3	Port 2 +
4	Gnd
Shell	Shield

Table 7 Serial Jack, RS232 & RS485



RS232 Jack

DB9 Pin	Assignment	RS-232C Name	Direction
1	DCD (Data Carrier Detect)	CF	In
2	RX (Receive Data)	BB	In
3	TX (Transmit Data)	BA	Out
4	DTR (Data Terminal Ready)	CD	Out
5	GND (Signal Ground)	AB	GND
6	DSR (Data Set Ready)	CC	In
7	RTS (Request to Send)	CA	Out
8	CTS (Clear to Send)	CB	In
9	RI (Ring Indicator)	CE	In

RS485 Jack

DB9 Pin	Assignment	Direction
1	NC	
2	Rx-	In
3	Tx+	Out
4	NC	
5	GND	GND
6	NC	
7	Tx-	Out
8	Rx+	In
9	NC	

ADDITIONAL READING

IBM PC Technical Reference, IBM Corp., 1983. - Complete reference to the PC. There are versions for both the PC/XT and PC/AT.

Microprocessor and Peripheral Handbook Volume 1 - Microprocessor, Intel, 1989. This volume contains register definitions for the parts duplicated in the Intel 82443BX and 82371EB.

The Programmer's PC Sourcebook, Thom Hogan, Microsoft Press, 1988. This volume contains many tables of useful information on the PC family. It is very handy for the assembly language programmer.

The Peter Norton Programmer's Guide to the IBM PC, Peter Norton, Microsoft Press, 1985. This book is an excellent introduction to the logical organization of the PC family. It highlights differences between different versions.

Microsoft MS-DOS User's Guide and User's Reference, Microsoft, 1988. This volume is included with each purchase of MS-DOS. It will explain DOS commands and some important operations such as formatting.

Programmer's Guide to the EGA and VGA Cards, Richard F. Ferraro, Addison-Wesley Publishing Company, 1988. This volume explains in good detail the function and use of the VGA registers and BIOS calls.

Super VGA BIOS Extension VBE Version 1.2, Video Electronics Standards Association (VESA), 1991. This document provides the standardized software interface for VESA VBE compliant Super VGA hardware.

Chips and Technologies F82C735 I/O Peripheral Controller with Printgine (Dual Buffered UART, Floppy Disk Controller and Parallel Port with EPP capability), Chips and Technologies 1993. This data sheet provides information on bit assignments and register assignments for the COM ports, configuration of standard/bidirectional parallel ports as well as detailed information on Enhanced Printer Port configuration.

C Programmers Guide to Serial Communications, Joe Campbell, Howard W. Sams & Company, 1987. A complete reference to programming asynchronous serial communications.

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