

Service Reference Card

HP Compaq dx2100 MT Series Business PC



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Key Specifications

Processor Type:	Intel Celeron D or Pentium 4
RAM Type:	DDR PC2 4200, non-ECC
Maximum RAM Supported:	4 GB
Expansion Bus:	PCI 2.2
Graphics Adapter	Integrated controller. PCI-e support.
Hard drive interface:	SATA 1.5 Gb/s
I/O Interfaces:	Serial (1), parallel (1), USB 2.0 (6), diskette drive (1)

System Setup and Boot

Basic system information regarding system information, setup, power management, hardware, and passwords is maintained in the Setup Utility held in the system ROM. The Setup Utility is accessed by pressing the F10 key when prompted (on screen) to do so during the boot sequence. If the screen prompt opportunity is missed, a restart will be necessary.

Computer Setup Menu

Heading	Option / Description
System Information	Lists the following main system specifications: <ul style="list-style-type: none"> Product Name SKU number Processor Type Processor Speed CPU ID Cache Size Memory Size System ROM Integrated MAC Address UUID System serial number Asset tag number
Standard CMOS Setup	Date (mm/dd/yy) - Allows you to set system date. Time (hh:mm:ss) - Allows you to set system time. PATA Controller - Disables/enables PATA controller PATA Ch 0 Master/PATA Ch 0 Slave - Allows you to detect IDE HDD size in selected channel, set UIDE on selected channel, set access mode on selected channel, view firmware version, and capacities, run SMART HDD status, and perform various SMART tests. SATA Controller - Disables/enables controller and both SATA and PATA channels. PATA IDE Mode - Allows you to identify if the PATA device is for the primary or secondary channel. SATA Port - Displays the SATA Port settings. PATA Ch 0 Master/PATA Ch 1 Master - Allows you to detect HDD size in selected channel, set extended drive on selected channel, set access mode on selected channel, view firmware version, and capacities, run SMART HDD status, and perform various SMART tests. Floppy Controller - Disables/enables floppy drive controller. Drive A - allows you to set floppy drive to None or 1.44, 3.5 in. Halt On - Allows you to set POST error behavior. POST Delay - Allows you to set a POST delay to 1, 5, 10, 15, or 30 seconds.
Advanced BIOS Features	Device Boot Disabling - Allows you to restrict a device from booting. Removable Device Boot Priority - Allows you to specify the order of attached removable devices in the boot sequence. Hard Disk Boot Priority - Allows you to specify the order in which attached HDDs are booted. Optical Drive Boot Priority - Allows you to specify the order in which attached ODDs are checked for a bootable operating system image. Network Boot priority - Allows you to specify the order in which network devices are checked for a bootable OS image. F9 Boot Menu Display - Disables/enables Boot menu. Quick Power On Self Test - Disables/enables system to skip select tests while booting. First, Second, or Third Boot Device - Allows you to specify boot sequence or disable any of the three devices. HDD S.M.A.R.T. Capability - Disables/enables S.M.A.R.T. Capability Boot up Numlock Status - Allows you to turn the default feature on or off. Security Option - Allows you to set security to determine whether a password is needed for booting or when entering Computer Setup. Hyper-Threading Technology - Disables/enables hyper-threading if the OCS permits it. APIC Mode - Disables/enables APIC. MPS Version Control for OS - Allows you to select 1.1 or 1.4 MPS table version. OS Select for DRAM > 64MB -Allows you to select OS2 or Non-OS2. Use OS2 only when RAM is greater than 64 MB. BIOS write Protection - Disables/enables ROM BIOS upgrading.

Computer Setup Menu (Continued)

Heading	Option / Description
Advanced Chipset Features	PCI Express Root Port Func - Allows you to set PCI Express Port 1 Auto, Enabled, or disabled and also to set PCI-e Compliance Mode to either v1.0 or 1.0a. On-Chip Frame Buffer Size (VGA Setting) - Allows you to set buffer size to 1MB or 8 MB. DVMT Mode (VGA Setting) - Allows you to set mode to Fixed, DVMT, or Both. DVMT/Fixed Memory Size (VGA Setting) - Allows you to set memory size to 64MB or 128 MB. Init Display First (VGA Setting) - Allows you to set initial clock detection to PCI slot or Onboard. Auto Detect PCI Clk - Disables/enables PCI clock auto detection. Spread Spectrum - Disables/enables clock spread spectrum.
Integrated Peripherals	USB Controller - Disables/enables USB controller. USB Legacy Support - Disables/enables USB keyboard and mouse. Onboard Audio - Allows you to auto-detect or disable onboard audio. Onboard LAN - Disables/enables onboard LAN controller. Onboard LAN Boot ROM- Disables/enables Boot ROM onboard on the LAN chip. Onboard Serial Port 1 - Allows you to select one of these settings: Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, or 2E8/IRQ3. Onboard Parallel Port - Allows you to select one of these settings: Disabled, 378/IRQ7, 278/IRQ5, or 3BC/IRQ7. Parallel Port Mode - Allows you to set parallel port mode to SPP, EPP, ECP, or ECP+EPP. ECP Mode use DMA - If parallel port mode set to ECP or ECP+EPP, allows you to set DMA channel for ECP mode to 1 or 3.
Power Management Setup	ACPI Function - Disables/enables ACPI functions. Changing this can make the installed OS unusable. ACPI Suspend Type - Allows you to set ACPI suspend to S1 (POS), S3 (STR) or S1 & S3. Soft off by Power Button - Allows you to set power button to instant off or 4 second delay. Power On After Power-Fail - Allows you to select system power loss behavior to Last state, On, or Off. MODEM use IRQ - Allows you to set IRQ for modem to NA (disable), 3, 4, 5, 7, 9, 10, or 11. Resume by PME - Disables/enable the feature. Wake on Device S5 - Disables/enables wake device from network. Resume by Alarm - Disables/enables RTC alarm. Date (of Month) Alarm - If resume by Alarm is enabled, allows you to select the day of the month to resume RTC alarm. Time (hh:mm:ss) Alarm - Allows you to set the time the RTC alarm will resume if the Resume by Alarm feature is enabled.
PnP/PCI Configurations	Allows you to select whether resources are controlled automatically or manually. IRQ Resources - When resources are manually controlled, allows you to assign a type to each system interrupt based on the device using it. Maximum Payload Size - Allows you to set TLP payload size for the PCI-e devices to 128, 256, 512, 1024, 2048, or 4096 bytes.
PC Health Status	CPU Temperature - View. CPU Fan Speed - View. System Fan Speed - View. SYS Fan Fault Check - Disable/enable detection of fan failure during POST.
Load Optimized Defaults	Allows you to reset Computer Setup to factory defaults.
Set Supervisor Password	Allows you to set a password to control access to Computer Setup.
Set User Password	Allows you to set a password to control access to the Computer.
Save & Exit Setup	Allows you to save current settings and exit Computer Setup.
Exit Without Saving	Allows you to exit Computer Setup without saving changes.

Failsafe Boot Block ROM

The computer comes with a reprogrammable flash system ROM (read only memory). To upgrade the ROM, download the latest ROM BIOS image from the HP Web site (www.hp.com) and follow the online GUI/instructions.

All ROM BIOS images from HP are digitally signed to ensure authenticity and minimize potential corruption. Your system ROM includes a Failsafe Boot Block that is protected during the flash process and allows the computer to be restarted in the unlikely event of an unsuccessful ROM flash.

If the system detects an invalid system ROM during the boot sequence the system will search for a bootable device. To recover from the Boot Block recovery mode complete the following steps:

Boot Block Recovery

1. Remove any bootable media from the computer and turn off power.
2. Insert a bootable diskette, or CD containing the ROM BIOS.
3. Turn on power to the system.
4. The system will automatically flash the ROM, load the BIOS default, and then boot to the operating system.

Security Functions

The system offers a single supervisor password for system and data protection. The password, if established, protects the computer from unauthorized access by prompting the user for a password during power up. The password, if established, protects the computer from unauthorized or inadvertent re-configuration by prompting the user for a password prior to entering the Setup Utility.

Establishing a password:

1. Turn on or restart the computer. If you are in Windows, click Start > Shut Down > Restart the computer.
2. When the F10 Setup message appears in the lower-right corner of the screen, press the F10 key. Press Enter to bypass the title screen, if necessary. If you do not press F10 when prompted, a restart will be necessary.
3. Select Password Option, then select Change Supervisor Password and follow the instructions on the screen. You may also want to establish the Password check at this time. This will allow you to specify when the password will be required.
4. Before exiting, click File > Save Changes and Exit.

Changing a password:

1. Turn on or restart the computer. If you are in Windows, click Start > Shut Down > Restart the Computer. To change the setup password, run Computer Setup.
2. When the key icon appears, type your current password, a slash (/) or alternate de-limiter character, your new password, another slash (/) or alternate delimiter character, and your new password again as shown:

current password/new password/new password.

NOTE: Type the new password carefully since the actual characters do not appear on the screen.

3. Press the enter key.

The new password will take effect the next time the computer is restarted.

Deleting a password

1. Turn on or restart the computer. If you are in Windows, click Start > Shut Down > Restart the Computer. To delete the setup password, run Computer Setup (F10).
2. When the key icon appears, type your current password followed by a slash (/) or alternate delimiter character as shown. Example: `currentpassword/`
3. Press the Enter key.

Clearing CMOS

1. Shut down the system and disconnect the power cord from the power outlet.
2. Remove the chassis access panel.
3. On the system board, move the CMOS jumper from pins 2-3 to pins 1-2
4. Allow the jumper to remain in that position for at least 5 seconds then, return the jumper to pins 2-3.
5. Replace the chassis access panel and reconnect the power cord.
6. Turn on the computer and allow it to start.

Security Features

Feature	Purpose	How It Is Established
Floppy drive controller	Prevents the transfer of data to or from the floppy drive.	Setup Utilities
Device Boot Disabling	Prevents booting from and or all of these devices: Internal or external USB, Internal ODD, or Internal FDD	Setup Utilities
Security Option	Prevents use of computer until password is entered. Can apply to both initial startup and restart.	Setup Utilities
BIOS Write Protect	Restricts ability to change ROM BIOS without approval.	Setup Utilities.
USB Controller	Allows you to disable or enable all USB devices.	Setup Utilities

NOTE:

For more information about Setup Utilities refer to the Computer Setup Menu on the previous page or in the *Service Reference Guide*.

Diagnostic Functions

Diagnostic functions are provided by the Setup Utility (in system ROM) and by Insight Diagnostics. Insight Diagnostics provides detailed system information including:

- Processor type and speed
- Memory amount, mapping, and integrity
- Hardware peripheral availability/settings
- Hard drive type, space used/available
- System identification, asset tracking

Insight Diagnostics may be pre installed on some models and can be downloaded free of charge from www.hp.com.

Error Conditions and Messages

Chassis Diagnostic LEDs

Power LED	Event
Steady green	System on (normal operation)
Steady green for 3 seconds followed by a 1 second pause	System overheating.
Blinks green @ 0.5 Hz	Suspend to RAM (some models)
Blinks green @ 0.5 Hz	Normal Suspend
Off (clear)	Computer off
Blinks green 5 times @ 1 Hz *	Memory not seated / installed
Blinks green 6 times @ 1 Hz *	Graphics card error
Blinks green 8 times @ 1 Hz*	Invalid ROM

NOTE:

* Repeated after 2 second pause

Common POST Error Messages

Screen Message	Probable Cause	Recommended Action
Parity Error	Fatal memory parity error. System halts after displaying this message.	Reseat memory modules. Replace memory modules
... Master/... Slave Hard Disk Error	(Primary/Secondary) Master/Slave hard drive could not be initialized by the BIOS.	Reseat the device data and power cables. Replace the device data cable. Replace the device. Replace the system board.
...Master/Slave Drive — ATAPI Incompatible	Device configured as a (Primary/Secondary) Master/Slave failed an ATAPI compatibility test.	Replace the device. Replace the system board.
SMART capable but Command Failed. SMART Command Failed	BIOS unable to send a SMART message to the device.	Backup the data on the hard drive. Replace the hard drive.
SMART status Bad, Backup and replace. SMART Capable and Status Bad.	SMART capable hard drive detects an imminent failure.	Backup the data on the hard drive. Replace the hard drive.
DMA-1 Error DMA-2 Error DMA Controller Error	Error when initializing the DMA controller.	Reconnect the cables on the peripheral device. Replace the data cable. Replace the device. Replace the system board.
Checking NVRAM...Update Failed	BIOS could not write to the NVRAM block.	Change system board jumper JP2 to pins 2-3, then flash the system BIOS. Reset jumpers to 1-2. Replace the system board.
NVRAM Ignored or NVRAM Bad	NVRAM data used to store plug and play data was not used for system configuration in POST.	Restart computer, access Computer Setup. Select Load Default Settings > Save and Exit . Change system board jumper JP2 to pins 2-3, then flash the BIOS. Reset jumpers to 1-2.
NVRAM Checksum Bad, NVRAM Cleared	Error detected while validating NVRAM data.	Restart the computer, use the F10 Key to access Computer Setup, Select Load Default Settings > Save and Exit .
Microcode Error	BIOS could not find or load CPU microcode to update the CPU.	Ensure the system board BIOS supports the processor. Change system board jumper JP2 to pins 2-3, then flash the BIOS. Reset jumpers to 1-2.