UEFI Firmware Overview on the HP Z210 Workstation

The HP Z210 Workstation is the first model with system firmware based on UEFI standards; it also includes HP legacy BIOS compatibility. UEFI (Unified Extensible Firmware Interface) provides a modern 64-bit interface between the operating system and system firmware, and removes several limitations present in BIOS, including disk size, option ROM size, pre-boot access to files and the network. UEFI will also enable new features over time.

HP recommends Windows® 7.

Overview

Feature	Benefits
Unicode Support	Allows displaying a wider range of non-Latin characters
Graphics support	UEFI applications have direct access to high-resolution graphics. Menus are rendered graphically using a built-in forms browser.
GPT support	GPT (GUID Partition Table) is a disk partitioning mechanism that allows booting UEFI operating systems from disks larger than 2.2 TB. Booting on large drives will be enabled on models on which HP makes them available.
Large option ROM support	UEFI option ROMs for add-in cards can be any size. BIOS options ROMs were required to fit together in a 160 KB area. Add-in cards can contain both BIOS and UEFI option ROMs. Note that a BIOS-based operating system cannot boot using a UEFI option ROM, although a UEFI-based OS can boot using a BIOS option ROM.
File system support	Allows pre-boot access to files on any FAT12/FAT16/FAT32 or El Torito (optical) device.
EFI shell	The EFI shell is a simple command-line environment that is not hampered by DOS limitations. On the HP Z210, the EFI shell is available as a web download, as part of the "HP Workstation BIOS Utilities" Softpaq. The EFI Shell is an open-source project (hosted on SourceForge); anyone can enhance the shell or develop shell tools. The "HP Workstation BIOS Utilities" Softpaq also contains tools for pre-boot disk partitioning (using GPT), formatting, file system verification, boot configuration editing, and FTP/TFTP transfers.
Network stack	A basic TCP/IP stack (IPv4) is available in the "HP Workstation BIOS Utilities" Softpaq; it allows pre-boot network access.
BIOS compatibility	The HP Z210 firmware provides legacy BIOS support through a CSM (compatibility support module); in effect, it includes the runtime part of the HP Workstation BIOS. This allows using all older operating systems that do not have UEFI support.
Unified boot menu	UEFI and BIOS boot options are available from the same boot menu. There is no need to pre-configure the firmware one way or the other. This simplifies the BIOS-to-UEFI transition.
UEFI OS support	Windows® 7 (64-bit) can be installed in BIOS or UEFI mode on the HP Z210. The preinstalled version uses BIOS mode only; a UEFI-based OS has to be obtained separately. In UEFI mode, Windows 7 requires that the boot disk is partitioned using GPT. Some versions of 64-bit Linux can also be installed in UEFI mode. In UEFI mode, booting involves executing a UEFI "loader" application which loads the rest of the operating system. The OS installer instructs firmware where to find the loader, through standardized boot variables stored in non-volatile memory. Boot sectors are not involved, which simplifies maintenance.
Signed image	The HP Z210 firmware image uses RSA digital signatures to make updating tamper-proof.

See also:
UEFI Forum: http://www.uefi.org/
UEFI and Windows: http://msdn.microsoft.com/en-us/windows/hardware/gg463149
EFI Shell project on SourceForge: http://sourceforge.net/apps/mediawiki/tianocore/index.php?title=Efi-shell
Installing UEFI-based Microsoft Windows 7 on the HP Z210 Workstation: http://tclapps.fc.hp.com/tclperf-data/Inetpub/perf/performance_briefs/
HP Z210 Workstation downloads: http://h20180.www2.hp.com/apps/Nav?h_pagetype=s-002&h_product=5053201

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