



Quad-monitor support via Intel® integrated graphics and a single discrete 2D graphics card on the HP Z210 CMT and SFF Workstations

With this generation of Intel® integrated graphics, it is now possible to utilize both the Intel integrated graphics in addition to an add-in graphics card. This allows HP to enable HP Z210 configurations with four displays using a single discrete graphics card for customers whose graphics needs are undemanding.

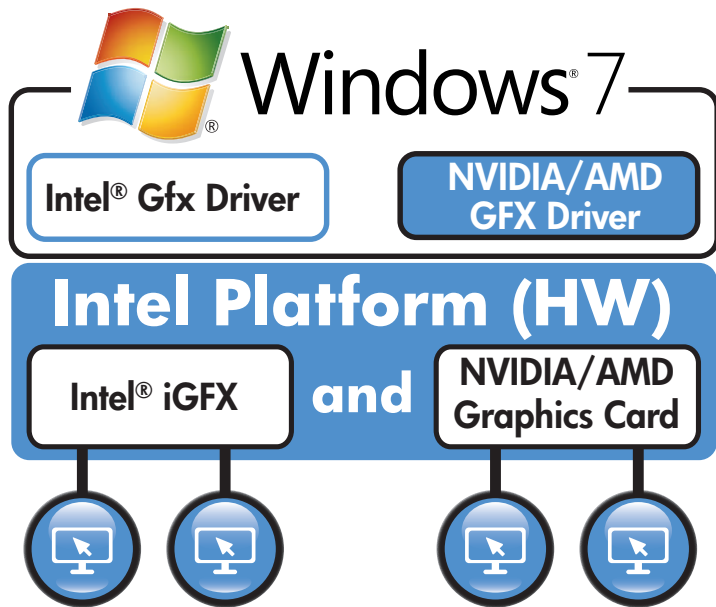
HP recommends Windows® 7.



Multi-monitor independent displays

FIGURE 1

Multi-Monitor Independent Displays Concurrent PEG/iGPU operation under Windows® 7.



Overview

With the advent of the Windows® 7 operating system, Microsoft® now supports mixing graphics devices from different vendors. This configuration is not supported with Windows Vista®, Windows XP or Linux.

For mixed graphics configurations, customers should only consider the 2D graphics cards from NVIDIA and AMD, namely the NVS 295, the NVS 300 and the FirePro 2270. Customers who need four 3D accelerated displays should consider the HP Z400 workstation.

These mixed graphics configurations are enabled for customers to use at their own risk and support will be provided on a “best effort” basis. Customers are encouraged to thoroughly evaluate these configurations using their real-world workload before committing to a mixed graphics configuration.

Only a single 2D graphics card should be used in mixed graphics configurations—best effort support will only apply to configurations with a single 2D graphics card. The HP Z210 CMT and SFF Workstations development team has not validated any of these configurations to Workstation level quality.

The HP Z210 default bios behavior is for integrated graphics to be disabled when a discrete graphics card is present in the system. The customer will have to go into the bios setup menus and manually enable integrated graphics when a discrete graphics card is present. If the system was ordered with discrete graphics installed, the customer will need to obtain the driver for integrated graphics from hp.com, and install it manually.

The graphics control panels from Intel®, AMD and NVIDIA are all limited to the displays from that graphics vendor and only the Windows 7 control panel can communicate with all of the displays. Vendor specific value add features such as NView and Hydravision won’t work on the displays attached to integrated graphics and could have side effects when used in mixed graphics configurations.

Intel HD graphics have different levels of 3D support (DX10/OpenGL 3.0) from most 3D accelerated NVIDIA and AMD graphics cards (DX11/OpenGL 4.0). Customers who need 3D graphics acceleration should avoid mixed graphics configurations.

HP recommends that the discrete graphics card host the primary display.



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Conclusion

In cases where a customer's graphics needs are simple and undemanding, mixed integrated and discrete graphics may be a means of enabling four displays on HP Z210. The customer will need to enable this feature for themselves, and should be aware of the level of support and risks involved in using mixed graphics. Ideally, the customer would evaluate the configuration with their own workloads before committing to a mixed graphics configuration.

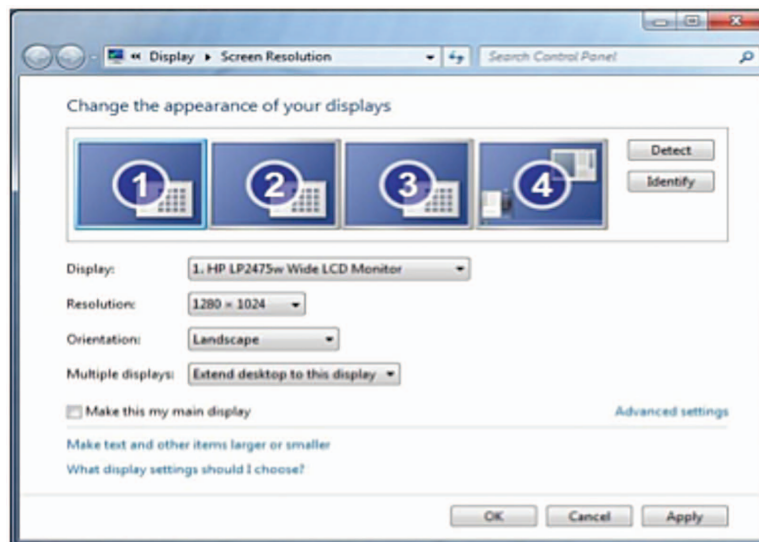
HP and our graphics vendors fully support dual add-in card configurations (dual-NVS 295, dual-NVS 300 or dual-FirePro 2270) and HP recommends these configurations for users wanting quad display support. Using identical cards eliminates the complexities of two different graphics vendors and HP will fully support these configurations under all operating systems.

Mixed graphics setup

1. Make sure that the processor used in the system is a model with Intel integrated graphics.
2. Make sure the 2D Graphics card is installed in the correct slot. (PCIe x16, HP Z210 CMT is slot2, and HP Z210 SFF is slot3)
3. Make sure the system is running Windows® 7.
4. Boot to SBIOS F10 setup menu -> Advanced -> Device Options, set "Integrated Video" setting to "enable".
 - "Enable" means enabling iGFX with add-in card installed. The factory shipped default setting is "Disable" in HP Z210 SBIOS.
 - The power up splash screen will be displayed on the discrete graphics card, even with integrated graphics enabled.
5. Install Intel® HD Graphics driver and restart system:
 - Download Intel HD Graphics 2000/P3000 driver from www.hp.com, and install it
 - Install the driver for the discrete graphics card, if not already installed.
6. Enabled all attached monitors using the Windows 7 Display Control Panel
 - Select the Display control panel then Screen Resolution -> Make this my main display to designate one of the displays hosted by the discrete graphics card as the primary display

FIGURE 2

Mixed graphics setup



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