

HP 9000 Series 300 Computers: Video Signals and Monitors

Video Signals and Monitor Selection

Except on the models 362 and 382, video output is provided on either a single BNC connector (for monochrome signals) or on three BNC connectors (for RGB colour signals). There are two general difficulties in getting a 'modern' monitor to display the video image. Firstly, the older and lower-resolution HP graphics systems produce signals with a horizontal scan frequency that is too low for most modern monitors to lock onto. Second, the HP graphics output does not have a separate vertical synchronisation signal; instead the sync signal is mixed in with either the monochrome signal or the green channel on an RGB colour system. At the time, Sony manufactured CRTs with sync-on-green (or mono) system and HP branded and sold these. Sony also used the same system with early PlayStations and other devices and, as a result, many older Sony monitors will work with just the three RGB signals lines from an HP 9000 series 300 computer. A monochrome output can be connected to the green input channel to obtain a green-on-black image. Alternatively, a simple circuit can be devised to split a monochrome signal into three; the same signal can then be applied to the R, G and B inputs to obtain a white-on-black monochrome display. For 1024 x 768 or higher resolution and a monitor of the same native resolution accepting RGB with sync-on-green, you should be good to go. For lower resolution signals, the horizontal scan frequency may be too low for the monitor to synchronise. Nevertheless, converters can be found that are aimed at enthusiasts of retro video games.

Model	Type	Resolution	Vertical refresh rate (Hz)	Horizontal scan frequency (kHz)	GPU codename
98542A	Mono	512 x 400	60	25.5	
98543A	16 colours	512 x 400	60	25.5	Topcat
98544B	Mono	1024 x 768	60	47.7	Topcat
98545A	16 colours	1024 x 768	60	47.7	Topcat
98547A	64 colours	1024 x 768	60	47.7	Topcat
98548A	Mono	1280 x 1024	60	63.3	Catseye
98549A	64 colours	1280 x 1024	60	63.3	Catseye *
98550A	256 colours	1280 x 1024	60	63.3	Catseye *†
A1096A	Mono	1280 x 1024	72	63.3	Hyperion
A1416A	256 colours	1280 x 1024	60	63.3	Kathmandu

Models 362 and 382 had a built-in medium-resolution VGA graphics system that can be connected to any monitor with a VGA input. Unfortunately, the HP Computer Museum report that the VGA video circuits on models 362 and 382 are unreliable. In that case, a separate 'frame buffer' DIO-II card will be needed and the RGB signals can be handled as discussed above.