

Digital Video Signal Generator for DVI and HDMI Devices

NI VideoMASTER for Digital Video Generation **NEW!**

- Generation of DVI and HDMI video (with disabled HDCP encryption) signals with 24-bit/pixel color depth digital video
- Support for formats from 480i to 1080p at 24 to 60 Hz (or fps)
- Comprehensive library of signal insertion test lines (ITLs)
- Generation with NI PXI-6542 at 100 MS/s, 32 bits; PXI VideoSPX-O DVI/HDMI interface
- Easy setup with custom step types for NI TestStand

Operating Systems

- Windows XP/2000

Required Software

- NI TestStand

Included Software

- VideoMASTER - Digital Generator
- VideoMASTER Digital Generator license
- Required NI drivers



Overview

NI VideoMASTER, a versatile video analysis and generation test suite for validation and production test, works with a wide variety of standards and formats for analog and digital video. VideoMASTER for Digital Video Generation combines an NI PXI-6542 high-speed digital waveform analyzer/generator and NI PXI-5404 frequency generator with a PXI VideoSPX-O DVI/HDMI output serializer module and VideoMASTER – Digital Generator software to deliver a comprehensive automated test solution for digital video devices.

VideoMASTER offers easy-to-use graphical user interfaces, a comprehensive library of insertion test signals to create video patterns, and seamless integration into NI TestStand test management software for automated validation and production environments. High test throughput, coverage for design and production requirements, and a relatively low cost ensure a reduced overall ownership cost for high-performance digital video test.

Solution for DVI and HDMI Video Generation

VideoMASTER for Digital Video Generation is a solution for functional test of digital video such as DVI (Digital Visual Interface) and HDMI (High-Definition Multimedia Interface) video, where you can disable the HDCP (High-bandwidth Digital Content Protection).

VideoMASTER for Digital Video Generation works with an extensive set of video formats and timings including:

- 480i and 480p 24/25/29.97/30/50/59.92/60 fps
- 576i and 576p systems 24/25/29.97/30/50/59.92/60 fps
- 720p systems 24/25/29.97/30/50/59.92/60 fps

- 1080i systems 24/25/29.97/30/50/59.92/60 fps
- 1080p 24/25/29.97/30 fps

VideoMASTER for Digital Video Generation also supports various color formats including:

- sRGB 4:4:4
- StudioRGB 4:4:4
- YCbCr 4:2:2
- YCbCr 4:4:4

This solution supports a color depth of 24 bits – in other words, 3x8 bit pixels, which resembles the ITU-R BT.601-5 and the 8-bit coding system of the ITU-R BT.709-5.

With the various fps options listed above, default video parameters are assigned for standard video formats such as 480i/p, 576i/p, 720p, and 1080i/p. However, you can customize these video parameters. This includes the video formats, aspect ratios, color formats, and a variety of other parameters such as the following:

- Scan mode
- Sample frequency
- Number of lines (total lines)
- Total line samples (per line)
- Active line samples (per line)
- H-sync to data
- H-sync duration
- V-sync duration
- Vertical blanking lines (number)
- V-sync delay
- Polarity of H-sync and V-sync

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Bitmap Images and Insertion of Test Signals

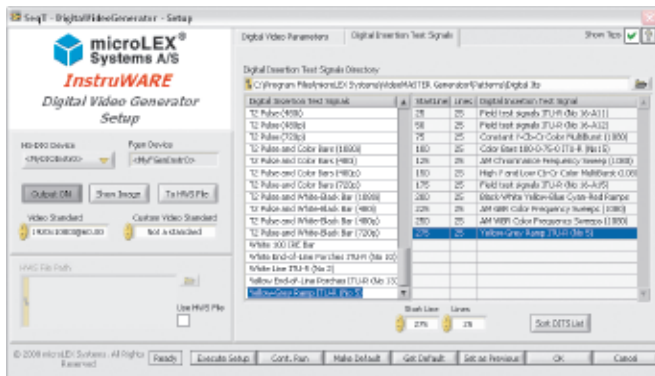
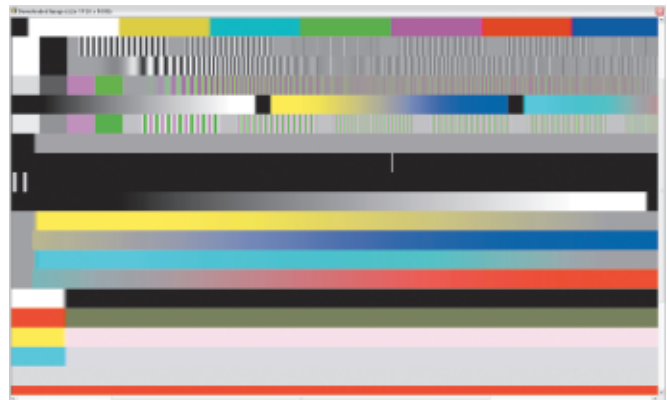
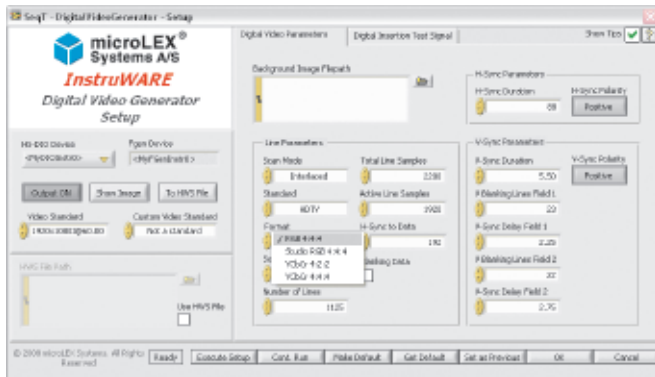
VideoMASTER offers several ways to create and generate standardized as well as custom digital video signals for DVI and HDMI with disabled HDCP encryption applications. The solution is ideal for validation and production testing of TVs, video recorders, set-top boxes, and broadcast equipment. The generation of signals is based on two essential modes of generation:

- Bitmap-based generation
- Insertion of test signals

Some bitmaps are included for specific test applications, but for special bitmap features, contact NI. Bitmaps from other sources or your own developed bitmaps also may be used as the generation source, provided the bitmap fits the selected format resolution.

You can also generate images with insertion test lines (ITLs). Commonly used in video testing, this feature is a powerful way to generate custom test images, such as a matrix pattern for production testing or validation, or to add ITLs in the blanking area of a video signal.

VideoMASTER for Digital Video Generation comes with a library of ITLs such as color bars, multibursts, chrominance and luminance frequency sweeps, color ramps, and various field test signals. The included ITL library supports standard video formats such as 480i/p, 576i/p, 720p, and 1080i/p. When selecting customized formats, you can apply ITL libraries carrying no timing information as you would in standardized formats. ITLs carrying timing information may yield timing deviations from the original format. An editor for test signal insertion is available through the Digital Insertion Test Signals interface, which offers an interactive method to drag and drop the various ITLs. The image previewer further helps you validate the test pattern before generation.



NI VideoMASTER for Digital Video Generation includes interactive graphical interfaces to use standard or custom video format parameters, display the generated video pattern, and create signals using bitmaps and insertion test lines (ITLs).

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You can take advantage of the full power of the VideoMASTER library to create final test images using a combination of bitmaps and inserted signals.

Hardware Architecture

VideoMASTER uses a dedicated PXI VideoSPX-O serializer module to convert the parallel digital stream from the PXI-6542 digital waveform analyzer/generator to a DVI or HDMI serial stream for digital video generation. In addition, a PXI-5404 frequency generator is used as a precision clock to the PXI-6542 for generating the specific video frequencies required for digital video. The interaction between these modules is transparent to the user and handled by the VideoMASTER - Digital Generator software.

Integrated NI TestStand Step Types

The simplest way to generate DVI and HDMI digital video signals is to use the VideoMASTER – Digital Generator custom step type that executes directly in NI TestStand.

The VideoMASTER step type for digital video generation provides an interactive interface to configure, control, and program the digital video generation hardware solution. With the step type, you can generate standard test patterns or create custom test patterns based on an RGB bitmap image combined with inserted test lines from a large library of video test lines. You can save the calculated video data to disk and recall previously calculated binary video data files from disk.

The step type for NI TestStand improves productivity, ease of use, and debugging significantly by offering extensive code reuse. It also reduces application software maintenance. Using VideoMASTER step types is the preferable and cost-optimal approach for digital video generation in application test development because it allows many instantiations of the generator in a single test application.

Visit ni.com/videomaster to configure your VideoMASTER solution.

Ordering Information

NI VideoMASTER for Digital Video Generation

Includes VideoMASTER - Digital Generator software, license for digital video generation, PXI-6542 with 8 MB of memory, PXI-5404 clock generator, PXI VideoSPX-O serializer module, SHC68-C68-D4 cable, and SMB200 cable.

NI VideoMASTER with NI PXI-6542 Digital Video Generator,

DVI or HDMI with HDCP disabled780433-01

NI LabVIEW and NI TestStand Compatibility

VideoMASTER – Digital Generator 1.0.3

- LabVIEW 8.2 or 8.2.1
- NI TestStand 3.5 or 4.0.1 (not compatible with NI TestStand 4.0)

Related VideoMASTER Solutions

- NI VideoMASTER for Digital Video Analysis
- NI VideoMASTER for Composite Video Generation
- NI VideoMASTER for Analog Video Analysis

BUY NOW!

For complete product specifications, pricing, and accessory information, call 800 813 3693 (U.S.) or go to ni.com/videomaster.

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Hardware Services

NI Factory Installation Services

NI Factory Installation Services (FIS) is the fastest and easiest way to use your PXI or PXI/SCXI combination systems right out of the box. Trained NI technicians install the software and hardware and configure the system to your specifications. NI extends the standard warranty by one year on hardware components (controllers, chassis, modules) purchased with FIS. To use FIS, simply configure your system online with ni.com/pxiadvisor.

Calibration Services

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