



UNIGRAF Product Catalog 2018

Table of Contents

DisplayPort™ Video Test Hardware

UCD-400 - DisplayPort™ 1.4 Test Device with HBR3 Support	5
UCD-323 - 4K Test tool for Testing DP 1.2 and HDMI 2.0 Sinks and Sources	6
UCD-301 - 4K Test Tool for Testing DP 1.2 and HDMI 2.0 Sources	6
DPA-400 - DisplayPort™ 1.4 AUX Channel Monitor	7
DPR-100 - Full Featured DP 1.1 Compliant RefSink Sink	8
DPT-200 - Full Featured DP 1.1 Compliant RefSource Source.....	8

HDMI Video Test Hardware

UCD-323 - 4K Test tool for Testing HDMI 2.0 and DP 1.2 Sinks and Sources	10
UCD-301 - 4K Test Tool for Testing HDMI 2.0 and DP 1.2 Sources	10
UFG-06 - Interoperability Test Tool for HDMI 1.4 Sources.....	11

USB-C™ Video Test Hardware

UCD-340 - Integrated Analyzer and Test Equipment for DisplayPort™ over USB-C™	13
External Power Unit - Enables UCD-340 to test Vbus Voltages From 5V to 20V	13

DisplayPort™ Compliance Test Software

Link Layer Compliance Testing Tools

UCD-400 - DisplayPort™ 1.4 Link Layer CTS for testing Sink, Source and Branch DUT	15
DPR-120 - VESA Certified Link Layer 1.2 CTS Tool for testing Source DUT.....	15

Authorized HDCP 2.2 Compliance Testing Tools

UCD-400 - HDCP 2.2 CTS for testing Sink, Source and Repeater on DP.....	16
UCD-340 - HDCP 2.2. CTS Tool for testing Sink and Source on DisplayPort™ over USB-C™	16
UCD-323 - HDCP 2.2 Tool for Testing Sink and Source on DisplayPort™	17
UCD-301 - HDCP 2.2 CTS Tool for testing Source on DisplayPort™	17
HDCP 2.2 CTS Software - UCD-400 or UCD-300 Series Test Equipment as Hardware Platform.....	18

Authorized HDCP 1.3 Compliance Testing Tools

DPR-100 - HDCP 1.3 CTS Tool for testing Source on DisplayPort™	19
DPT-200 - HDCP 1.3 CTS Tool for testing Sink on DisplayPort™	19

Video Capture Boards

UFG-12 - Modern Frame Grabber Family	21
UFG-07 - Established Frame Grabber Family	23

	<u>UCD-400</u>	<u>UCD-340</u>	<u>UCD-323</u>	<u>UCD-301</u>	<u>DPA-400</u>	<u>DPR-120</u>	<u>DPR-100</u>	<u>DPT-200</u>	<u>UFG-06</u>
Video Testing									
DP 1.4	●				●				
DP 1.2	●	●	●	●	●	●			
DP 1.1	●	●	●	●	●	●	●	●	●
HDMI 2.0			●	●					
HDMI 1.4			●	●					●
DisplayPort™ Alt Mode over USB-C™	●	●			●				
External Power Unit 20V / 5A		●							
Analyzer	●	●	●	●		●	●		●
Pattern Generator	●	●	●					●	
Multi Stream	●		●			●			
AUX Channel Monitor					●	●			
TSI SDK	●	●	●	●		●			●
Windows Drivers	●	●	●	●	●	●	●	●	●
Console GUI Software	●	●	●	●		●	●	●	
Video Capture and Preview	●	●	●	●					●
Audio Capture and Preview	●	●	●	●					●
8K Capture	●								
4K Capture	●	●	●	●					
Full HD Capture	●	●	●	●		●			●
Link Status	●	●	●	●		●	●	●	
DPCD	●	●	●	●		●	●	●	
EDID	●	●	●	●		●	●	●	●
HDCP 2.2	●	●	●	●	●	●			
HDCP 1.3	●	●	●	●	●	●	●	●	●
Event Log	●	●	●	●					●
Frame Level CRC Comparison	●	●	●	●					●
Compliance Testing									
DP 1.4 Link Layer CTS	●								
DP 1.2 Link Layer CTS						●			
HDCP 1.3 CTS on DP							●	●	
HDCP 2.2 CTS on DP	●	●	●	●					
PHY CTS (AUX Controller)							●	●	



Product Feature Matrix



DisplayPort™ Video Test Hardware

UCD-400

DisplayPort™ 1.4 Test Device with HBR3 Support

UCD-400 is an interface test unit for verifying DisplayPort™ interfaces up to 8K@30 Hz and 4K@120 Hz video modes. It is a flexible and robust tool either via a GUI on a laboratory desktop or via automated functionality tests. The associated software provide the user access to the vital parameters and controls needed when evaluating the various functions of the interface.

UCD-400 is platform for both DP 1.4 Link Layer and HDCP 2.2 Compliance Tests. You can use the same unit for testing both Sink and Source DUT. Capability for testing Repeaters will be added later. The unit supports FEC, DSC and LTTPR.

For more information, please visit:

www.unigraf.fi/products/dp-test-hardware/ucd-400



UCD-323

4K Test tool for Testing DP 1.2 and HDMI 2.0 Sinks and Sources

UCD-323 is a UHD / 4K @ 60 fps compliant video capture unit and pattern generator for testing DisplayPort™ and HDMI Sinks and Sources. UCD-323 HDDP Dual enables testing all aspects of HDMI 2.0 and DP 1.2 inputs and outputs. UCD-323 is also an Authorized Test Equipment for testing HDCP 2.2 Compliance on DisplayPort™ Sinks and Sources. UCD Console GUI is the preview and control application for UCD-323. The user can monitor, sink and source video and audio, evaluate the upstream and downstream link statuses and control the link parameters.

For more information, please visit:

www.unigraf.fi/products/dp-test-hardware/ucd-323-hddp-dual



UCD-301

4K Test Tool for Testing DP 1.2 and HDMI 2.0 Sources

UCD-301 is a UHD / 4K @ 60 fps compliant video capture unit for testing DisplayPort™ and HDMI Sources. UCD-301 Digital enables testing all aspects of HDMI 2.0 and DP 1.2 outputs. UCD-301 also supports HDCP 2.2. CTS testing for DisplayPort™ sinks. UCD Console GUI is the preview and control application for UCD-301. The user can monitor and store the captured content, evaluate the upstream link status and control the link parameters.

For more information, please visit:

www.unigraf.fi/products/dp-test-hardware/ucd-301-digital



DPA-400

DisplayPort™ 1.4 AUX Channel Monitor

DPA-400 with the AUX Channel Monitor GUI provide a compact, pocket sized tool for recording and analyzing DisplayPort AUX channel traffic. They enable the user to monitor, capture and document the DPCD reads and writes and the MST Sideband Channel Communication over a DP link. DPA-400 is compatible with all DP versions from DP 1.1 to 1.4 and HDCP 1.3 and 2.2 messaging. DPA-400 is also compatible with DisplayPort Alternate Mode in USB Type-C interface.

Unigraf AUX Channel Monitor is an almost mandatory tool for any engineer verifying or debugging Compliance Test or Interoperability Test results. Only by analyzing the details of the source – sink interaction the designer is able to fully confirm the behavior of both parties. When the content of each read and write are available in detail, there will be no room for guessing.

With the special, Unigraf provided cable you can attach DPA-400 directly between any two USB Type-C enabled devices and monitor DisplayPort Alt Mode related AUX Channel message transaction.

For more information on DPA-400, please visit:

www.unigraf.fi/products/dp-compliance-test-hardware/dpa-400

For more information on monitoring AUX Channel communication of DisplayPort™ interface, please visit:

www.unigraf.fi/test-tools/development-tools/dp-aux-channel-monitor



DPR-100

Full Featured DP 1.1 Compliant RefSink Sink

DPR-100 is a DisplayPort™ Reference Sink. It is an easy to use platform for Audio and HDCP compliance tests of DP Source devices. It serves also as AUX Controller for PHY CTS test automation when equipped with a dedicated firmware. DPR-100 with an appropriate software is certified by DCP LLC as Authorized Test Equipment for HDCP CTS.

For more information, please visit:

www.unigraf.fi/products/dp-test-hardware/dpr-100



DPT-200

Full Featured DP 1.1 Compliant RefSource Source

The DPT-200 is a USB controlled device. It has a very compact size and light weight. The DPT-200 is a full featured and easy to use DisplayPort™ source for development, debug and compliance testing of DP connected monitors. DPT-200 is fully compatible with Unigraf DP RefSource CTS tools.

For more information, please visit:

www.unigraf.fi/products/dp-test-hardware/dpt-200





HDMI Video Test Hardware

UCD-323

4K Test tool for Testing HDMI 2.0 and DP 1.2 Sinks and Sources

UCD-323 is a UHD / 4K @ 60 fps compliant video capture unit and pattern generator for testing HDMI and DisplayPort™ Sinks and Sources. UCD-323 HDDP Dual enables testing all aspects of HDMI 2.0 and DP 1.2 inputs and outputs. UCD-323 is also an Authorized Test Equipment for testing HDCP 2.2 Compliance on DisplayPort™ Sinks and Sources. UCD Console GUI is the preview and control application for UCD-323. The user can monitor, sink and source video and audio, evaluate the upstream and downstream link statuses and control the link parameters.

For more information, please visit:

www.unigraf.fi/products/dp-test-hardware/ucd-323-hddp-dual



UCD-301

4K Test Tool for Testing HDMI 2.0 and DP 1.2 Sources

UCD-301 is a UHD / 4K @ 60 fps compliant video capture unit for testing HDMI and DisplayPort™ Sources. UCD-301 Digital enables testing all aspects of HDMI 2.0 and DP 1.2 outputs. UCD-301 also supports HDCP 2.2. CTS testing for DisplayPort™ sinks. UCD Console GUI is the preview and control application for UCD-301. The user can monitor and store the captured content, evaluate the upstream link status and control the link parameters.

For more information, please visit:

www.unigraf.fi/products/dp-test-hardware/ucd-301-digital



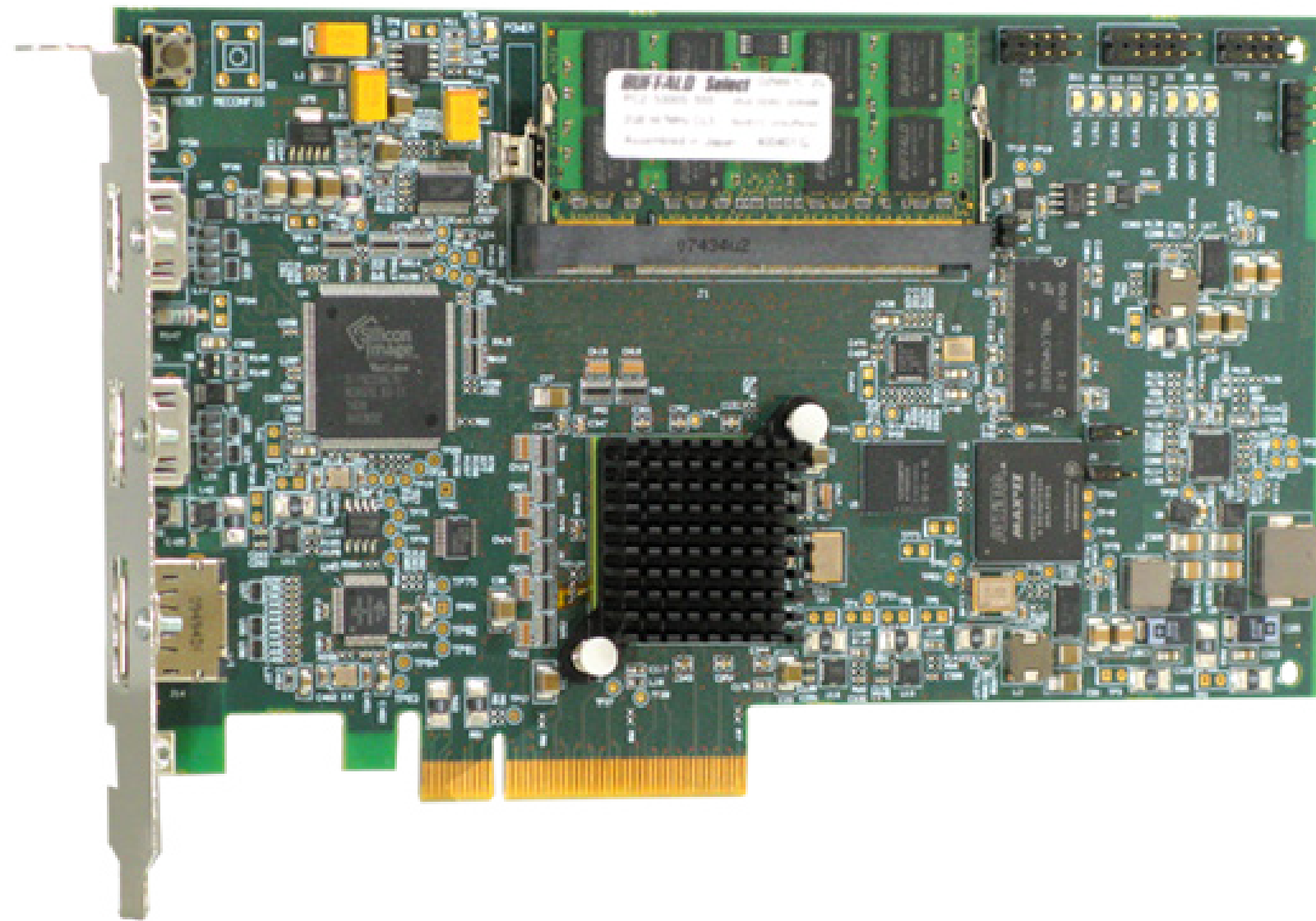
UFG-06

Interoperability Test Tool for HDMI 1.4 Sources

UFG-06 HDDP Nopea is a powerful and affordable interoperability test tool for HDMI 1.4 source devices. UFG-06 HDDP is compatible with TSI, Unigraf high level test interface API. Combined with the TSI Test Cases, UFG-06 HDDP is a functionality testing tool with ready test routines for testing HDMI and DisplayPort™ interfaces.

For more information, please visit:

www.unigraf.fi/products/video-test-hardware/ufg-06-hddp



USB-C™



USB-C™ Video Test Hardware

UCD-340

Integrated Analyzer and Test Equipment for DisplayPort™ over USB-C™

UCD-340 is the first integrated analyzer and test equipment for DisplayPort™ over USB-C™ sinks and sources. UCD-340 features a flexible and robust way of analyzing video, audio and power delivery functions of USB-C™. The provided software enables user access to the vital parameters and controls needed when evaluating the various functions of the interface. The optional Electrical Testing feature of UCD-340 enables testing the continuity of signals in the USB-C™ interface by verifying current flow in signal lines

For more information, please visit:

www.unigraf.fi/products/video-test-hardware/ucd-340



External Power Unit

Enables UCD-340 to test Vbus Voltages From 5V to 20V

UCD-340 External USB-C™ Power Test Unit enables testing the full range of USB-C™ Vbus voltages from 5 V to 20 V. Current sink and current source capabilities of the DUT can be tested all the way up to 20 V / 5 A.

For more information, please visit:

www.unigraf.fi/products/video-test-hardware/usb-c-external-power-test-unit





DisplayPort™ Compliance Test Software

Link Layer Compliance Testing

UCD-400

DisplayPort™ 1.4 Link Layer CTS for testing Sink, Source and Branch DUT

UCD-400 is platform for both DP 1.4 Link Layer and HDCP 2.2 Compliance Tests. You can use the same unit for testing both Sink and Source DUT. Capability for testing Repeaters will be added later. The unit supports FEC, DSC and LTTTPR.

For more information, please visit:

www.unigraf.fi/products/video-test-hardware/ucd-400



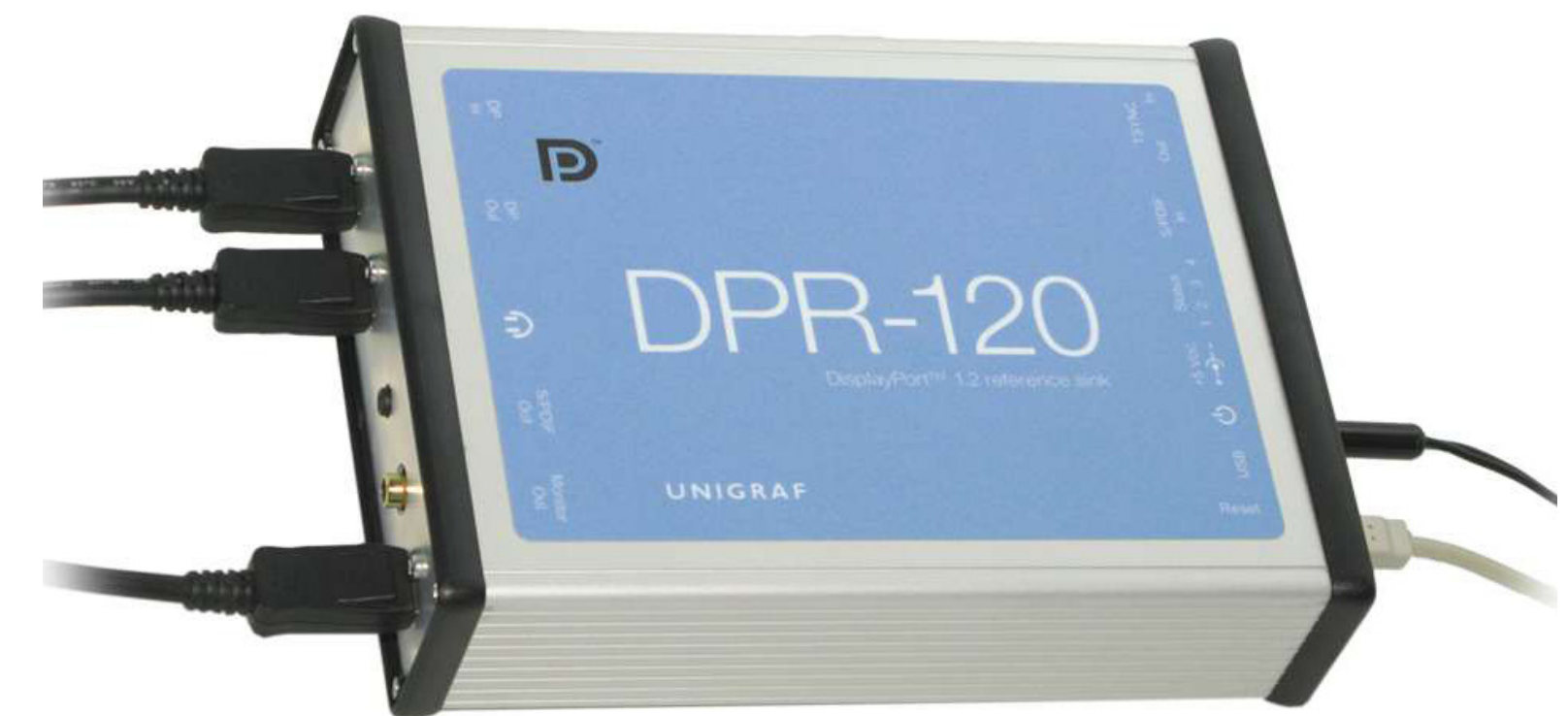
DPR-120

VESA Certified Link Layer 1.2 CTS Tool for testing Source DUT

VESA has certified DPR-120 as the Authorized Test tool for testing Link layer CTS 1.2 Core and Extension Set 1 revision 1.1. DPR-120 is a full featured DisplayPort™ 1.2 compliant Reference Sink. It provides all features needed for testing DP Multistream (MST) source devices like PC display cards or portable computers.

For more information, please visit:

www.unigraf.fi/products/dp-test-hardware/dpr-120



Authorized HDCP 2.2 Compliance Testing Tools

UCD-400

HDCP 2.2 CTS for testing Sink, Source and Repeater on DP

UCD-400 is a **DCP Approved** Test Tool for testing HDCP 2.2 Receivers and Transmitters on the DisplayPort interface. UCD-400 is platform for both HDCP 2.2 and DP 1.4 Link Layer Compliance Tests. You can use the same unit for testing both Sink and Source DUT. The unit supports FEC, DSC and LTPPR.

For more information, please visit:

www.unigraf.fi/products/video-test-hardware/ucd-400



UCD-340

HDCP 2.2. CTS Tool for testing Sink and Source on DisplayPort™ over USB-C™

UCD-340 is a HDCP 2.2 Compliance test tool for DisplayPort™ over USB Type-C Sinks and Sources. HDCP 2.2 Compliance Test capability is an add-on feature to UCD-300 debug tool called UCD Console. The tests can be straightforwardly enabled to any UCD-300 installation with an SW update and application of the corresponding license key.

For more information, please visit:

www.unigraf.fi/products/video-test-hardware/ucd-340



Authorized HDCP 2.2 Compliance Testing Tools

UCD-323

HDCP 2.2 Tool for Testing Sink and Source on DisplayPort™

UCD-323 is a **DCP Approved** Test Equipment for verifying HDCP 2.2 Compliance on DisplayPort Sinks and Sources. HDCP 2.2 Compliance Test capability is an add-on feature to UCD-300 debug tool called UCD Console. The tests can be straightforwardly enabled to any UCD-300 installation with an SW update and application of the corresponding license key.

For more information, please visit:

www.unigraf.fi/products/dp-test-hardware/ucd-323-hddp-dual



UCD-301

HDCP 2.2 CTS Tool for testing Source on DisplayPort™

UCD-301 is a **DCP Approved** Test Equipment for verifying HDCP 2.2 Compliance on DisplayPort Sources. HDCP 2.2 Compliance Test capability is an add-on feature to UCD-300 debug tool called UCD Console. The tests can be straightforwardly enabled to any UCD-300 installation with an SW update and application of the corresponding license key.

For more information, please visit:

www.unigraf.fi/products/dp-test-hardware/ucd-301-digital



HDCP 2.2 CTS Software

UCD-400 or UCD-300 Series Test Equipment as Hardware Platform

HDCP 2.2 CTS Software enables DisplayPort HDCP 2.2 Compliance Tests for testing DP Sinks, Sources and Repeaters. Compatible test platforms are UCD-400, UCD-340, UCD-323 or UCD-301.

Unigraf HDCP 2.2 CTS solution for testing DP Source and Sink DUTs has already been listed by DCP LLC as **DCP Approved** Test Tool on UCD-400, UCD-323 and UCD-301 test equipment platforms (www.digital-cp.com/compliance). The evaluation of the tests for UCD-400 Repeaters and UCD-340 platforms continues. The Certified Tool and the engineering versions are available for deliveries. HDCP 2.2 CTS capability is an add-on feature to UCD-300 debug tool called UCD Console. The tests can be straightforwardly enabled to any UCD-400 or UCD-300 installation with an SW update and application of the corresponding license key. In addition to the Compliance Tests, UCD-400 and UCD-300 Series devices feature also Functionality Testing of HDCP 1.3 and HDCP 2.2 encryption.

	UCD-400	UCD-340	UCD-323	UCD-301
HDCP 2.2 CTS for Source DUT	Yes*	Yes	Yes*	Yes*
HDCP 2.2 CTS for Sink DUT	Yes*	Yes	Yes*	
HDCP 2.2 CTS for Repeater DUT	Yes			

* DCP Approved Test Tool.

Authorized HDCP 1.3 Compliance Testing Tools

DPR-100

HDCP 1.3 CTS Tool for testing Source on DisplayPort™

DPR-100 with an appropriate software is certified by DCP LLC as Authorized Test Equipment for HDCP CTS. DPR-100 is a compact sized Reference Sink for running Audio and HDCP tests for DUT DP Source devices. The DP RefSink CTS SW GUI allows the user to configure the test to match the DUT capabilities, follow execution of the test and get a easy-to-read report of the actions during the test and the details of the pass or failure.

For more information, please visit:

www.unigraf.fi/products/dp-test-hardware/dpr-100



DPT-200

HDCP 1.3 CTS Tool for testing Sink on DisplayPort™

DPT-200 is fully compatible with Unigraf DP RefSource CTS tools making it a complete HDCP 1.3 CTS tool for testing Sink on DisplayPort™. DPT-200 is a full featured and easy to use DisplayPort™ source for development, debug and compliance testing of DP connected monitors.

For more information, please visit:

www.unigraf.fi/products/dp-test-hardware/dpt-200





Video Capture Boards

UFG-12 Modern Frame Grabber Family

UFG-12 Series is a modern PCIe bus based frame grabber family that captures both video and audio. UFG-12 family is compatible with standard DirectShow and V4L2 applications and the included SDK enables easy integration with customer own program in Windows or Linux environment. The efficient PCIe bus enables the high data throughput needed to capture HD video.

UFG-12 HDMI 4K

Capture 4K at 60 fps.

UFG-12 HDMI 4K frame grabber features one HDMI 2.0 input supporting 4K video capturing at 60 fps. UFG-12 HDMI 4K is a low-profile and cost effective video capture board specifically designed for high-definition video capture applications. UFG-12 HDMI 4K also comes with VESA format support.

For more information, please visit:

www.unigraf.fi/products/video-capture-boards/ufg-12-hdmi-4k



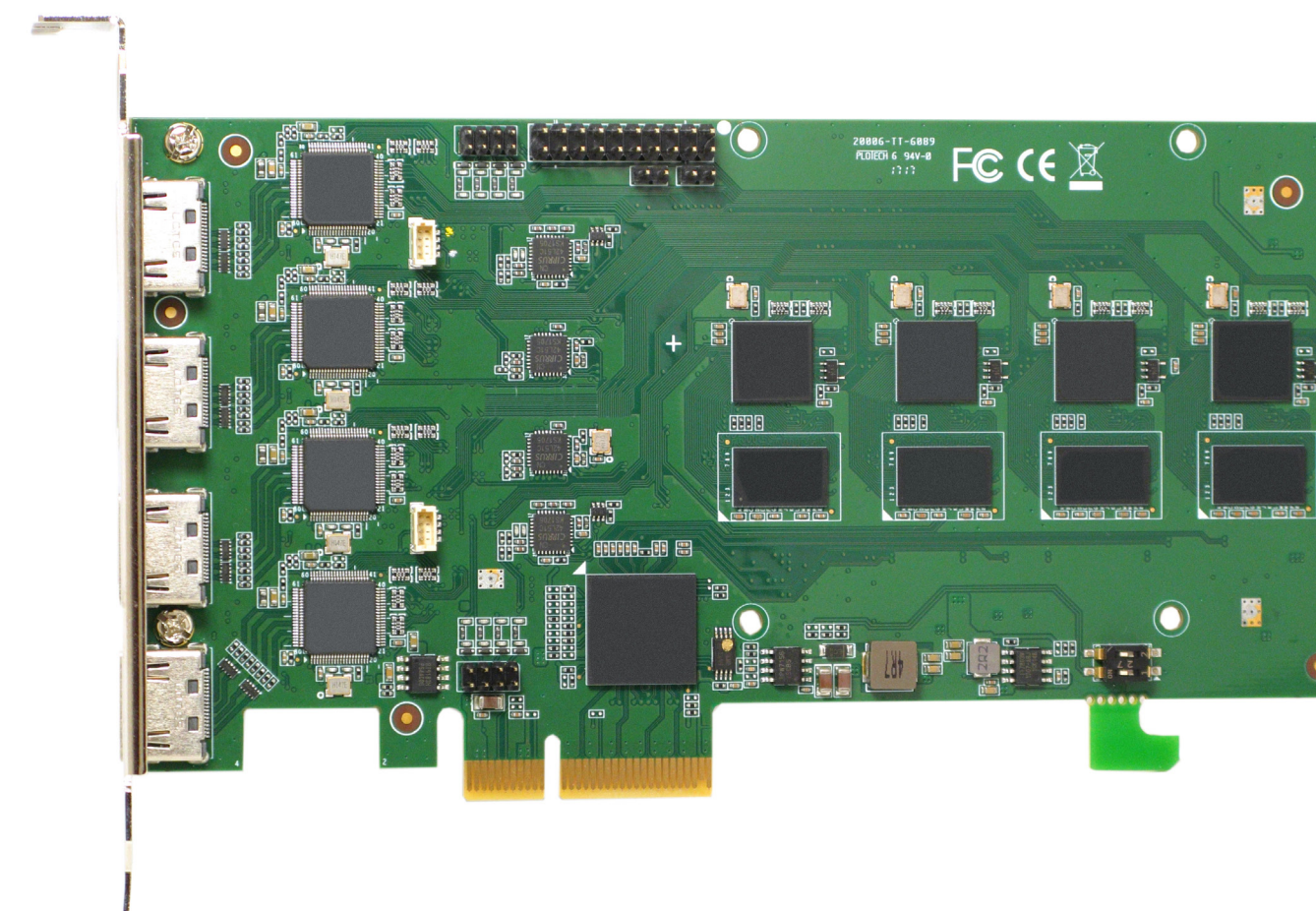
UFG-12 4H

Capture Four HDMI Channels at Once

UFG-12 4H frame grabber features four (4) independent HDMI inputs. They enable simultaneous capture of the video and audio of four HDMI streams at 60 fps. This makes UFG-12 4H an optimal choice for Presentation Media storage PCs where the use of PCIe slots needs to be optimal.

For more information, please visit:

www.unigraf.fi/products/video-capture-boards/ufg-12-4h

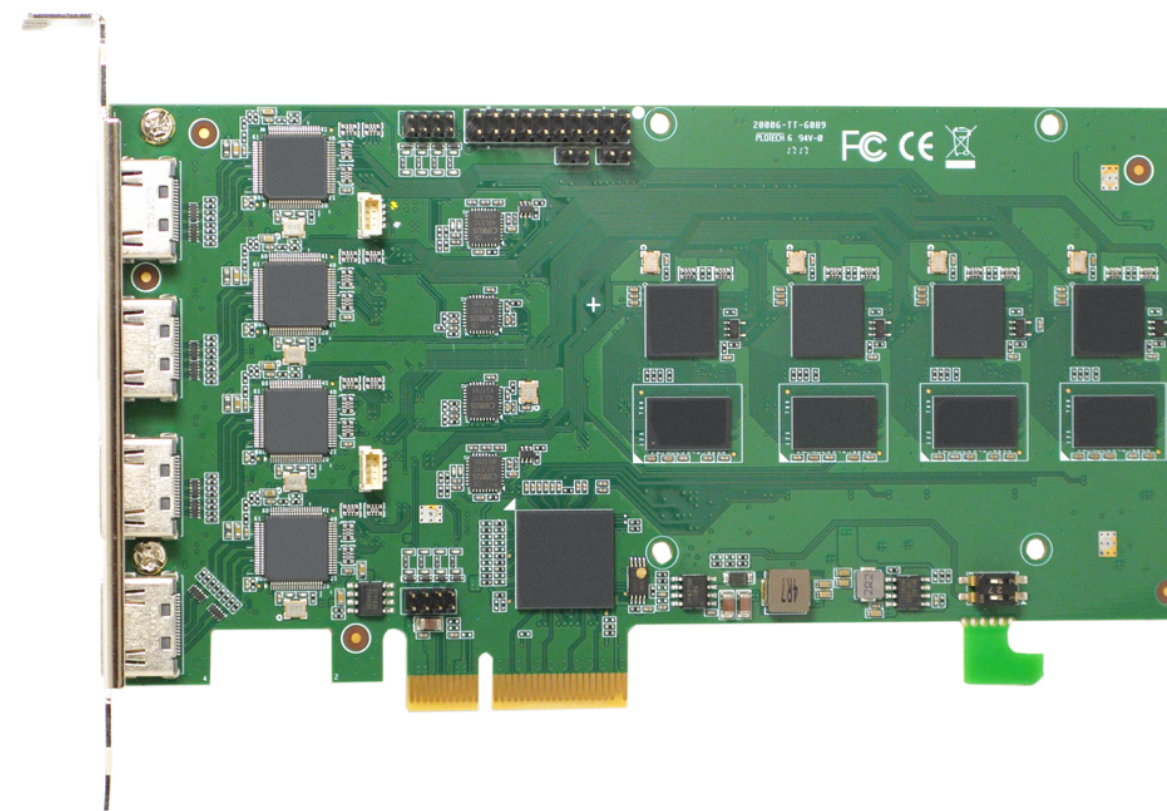


UFG-12 2S

Two SDI Inputs With Pass Through

UFG-12 2S low profile frame grabber features two (2) independent SDI inputs. They enable simultaneous capture of the video and audio of two SDI streams. This makes UFG-12 2S an optimal choice for compact sized Media storage PCs where the use of PCIe slots needs to be optimal.

For more information, please visit:
www.unigraf.fi/products/video-capture-boards/ufg-12-2s

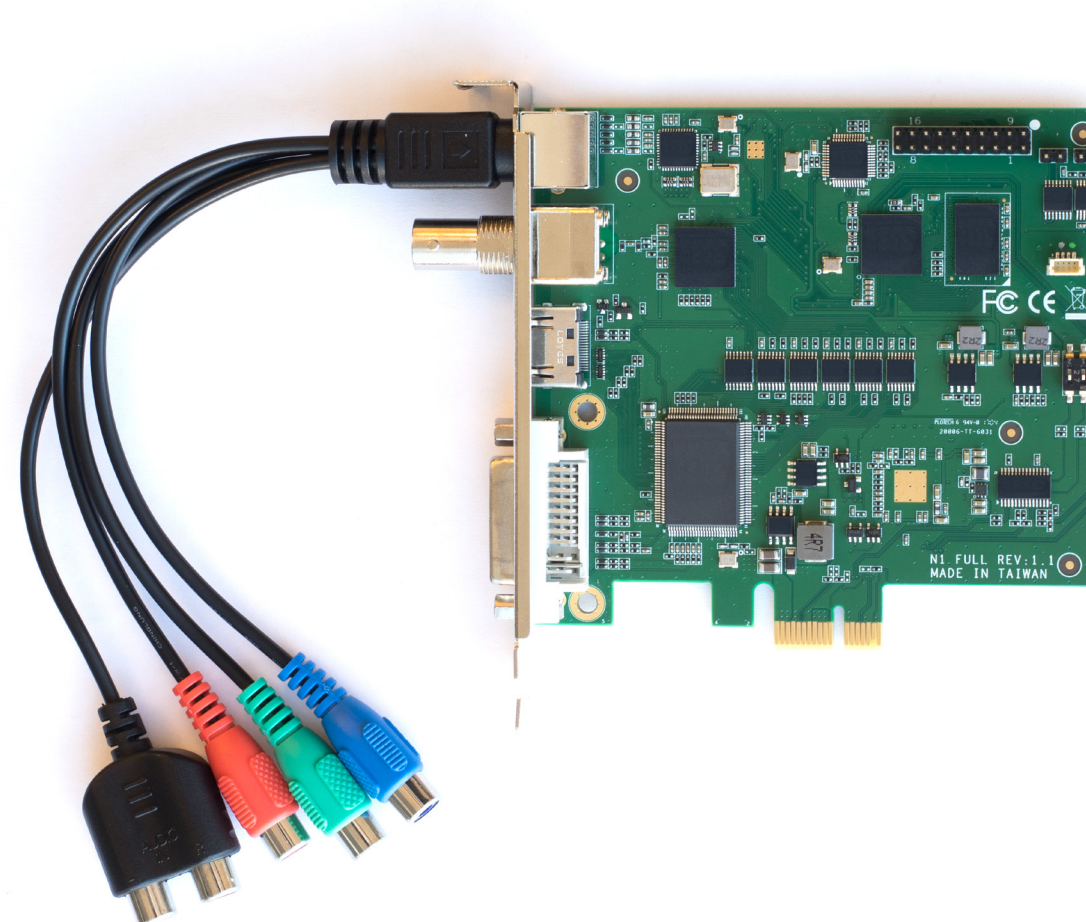


UFG-12 M

Five Video Input Types

UFG-12 M frame grabber features five popular video input types from analog RGB to digital SDI. In addition to the embedded audio in HDMI and SDI, it can capture also discrete L / R audio. The flexibility makes UFG-12 M an optimal choice for e.g. as the capturing device for a Medical or Presentation Media PC.

For more information, please visit:
www.unigraf.fi/products/video-capture-boards/ufg-12-m

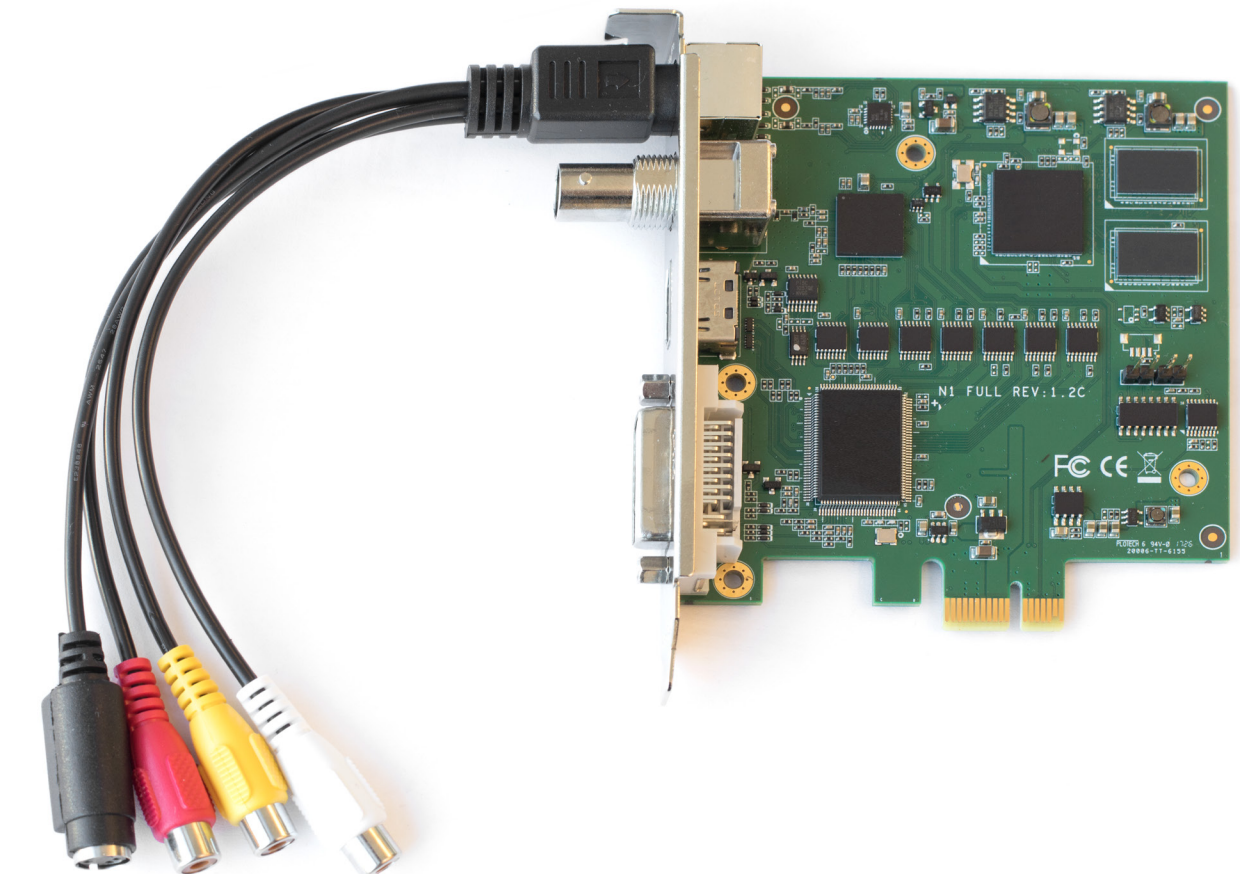


UFG-12 MC

H.264 Video Compression

UFG-12 MC frame grabber features on-board hardware compression for lowering the host CPU loading. It provides both input video and audio in a H.264 compressed stream for the capture application. The versatility makes UFG-12 MC an optimal choice for e.g. a Medical, Industrial or Presentation Media storage PC.

For more information, please visit:
www.unigraf.fi/products/video-capture-boards/ufg-12-mc



UFG-07 Modern Fram Grabber Family

UFG-07 HSDP is a modern, high speed PCI Express bus based frame grabber family. It is able to capture high definition video in DisplayPort, HDMI/DVI or analog video. A wide variety of standard PC video capturing tools can be used to store video streams. The efficient PCIe X4 bus enables a high data throughput needed to capture crystal clear high resolution video. UFG-07 Series frame grabbers automatically detect all standard VESA and HDTV modes.

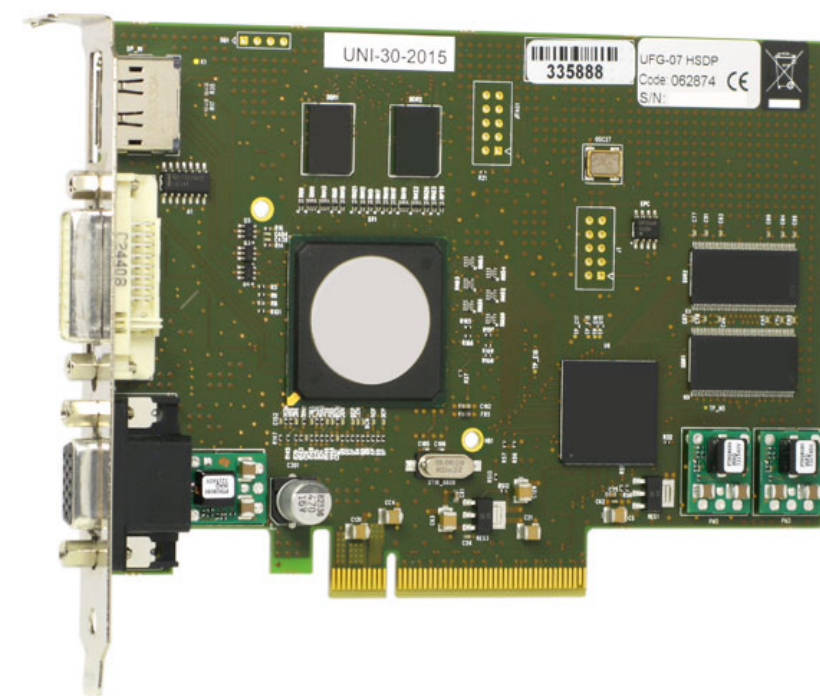
UFG-07 HSDP

Full Frame Rate Capturing

- Full Frame Rate capturing up to 1920x1080p60
- On-board hardware scaling and de-interlacing
- High Speed 4-lane PCIe bus
- Inputs for DisplayPort, HDMI/DVI, RGB/YPbPr video
- DirectShow AVStream driver with configuration dialog

For more information, please visit:

www.unigraf.fi/products/video-capture-boards/ufg-07-hsdp



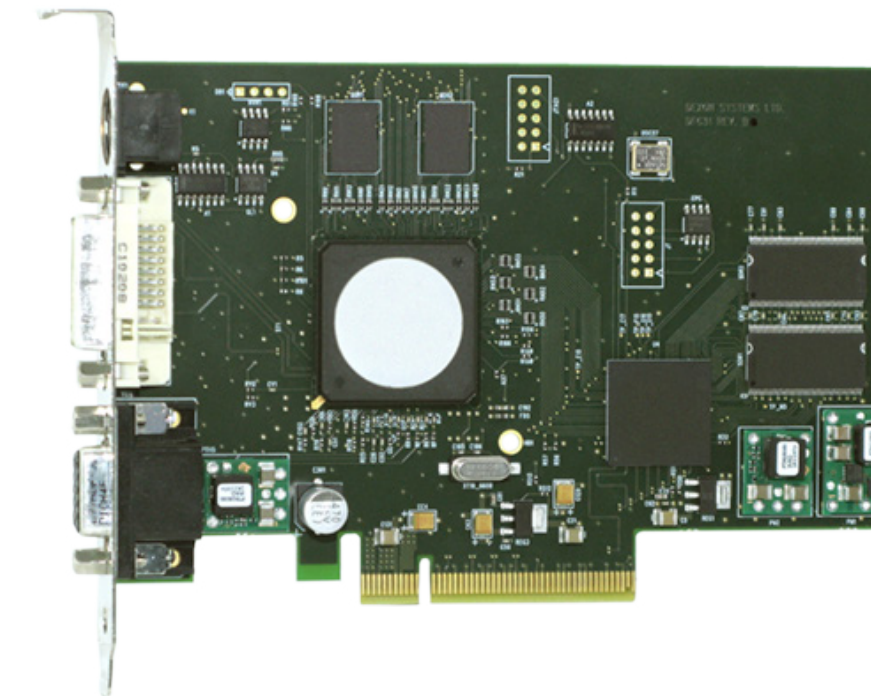
UFG-07 HS

High Speed 4-lane PCIe bus

- Full Frame Rate capturing up to 1920x1080p60
- On-board hardware scaling and de-interlacing
- High Speed 4-lane PCIe bus
- Inputs for DisplayPort, HDMI/DVI, RGB/YPbPr video
- DirectShow AVStream driver with configuration dialog

For more information, please visit:

www.unigraf.fi/products/video-capture-boards/ufg-07-hs



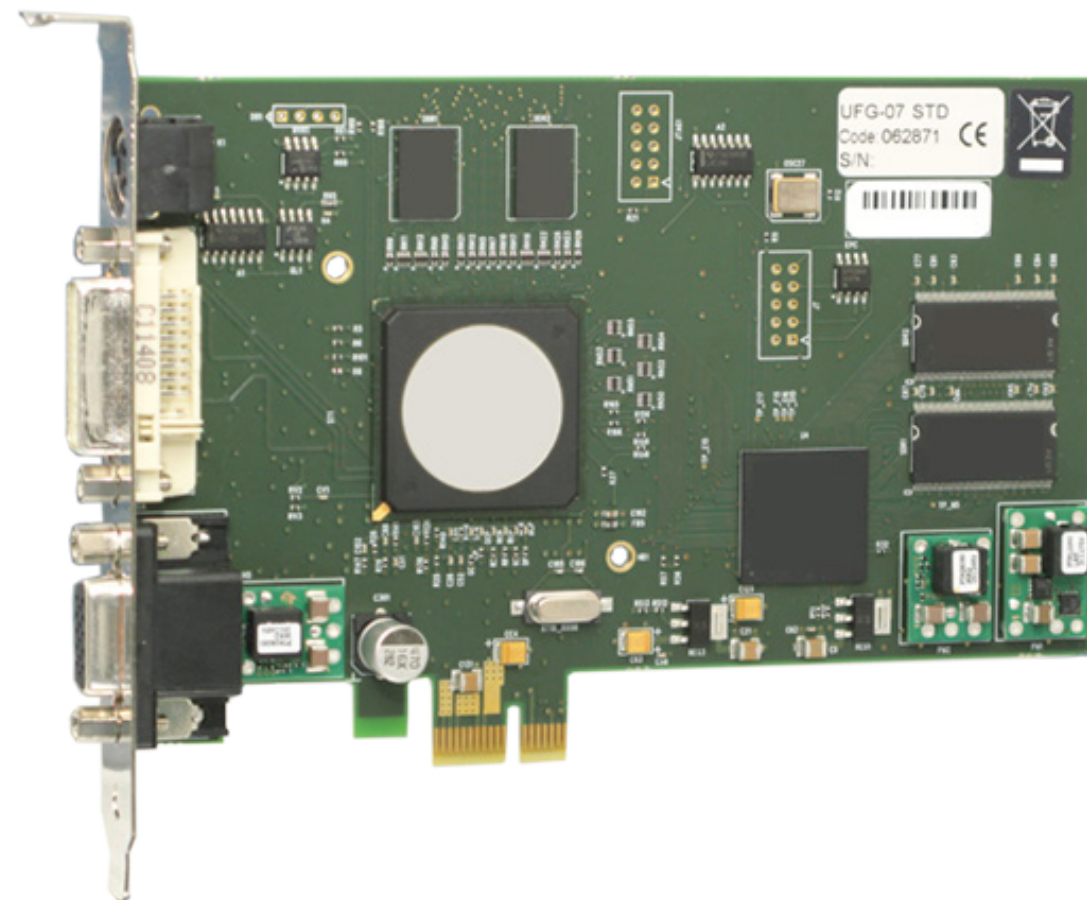
UFG-07 STD

High Speed PCIe bus

- Capturing up to 1920x1200p60
- High Speed PCIe bus
- Separate inputs for HDMI/DVI, RGB/YPbPr and S-Video/CVBS
- DirectShow AVSteam driver with configuration dialog

For more information, please visit:

www.unigraf.fi/products/video-capture-boards/ufg-07-std



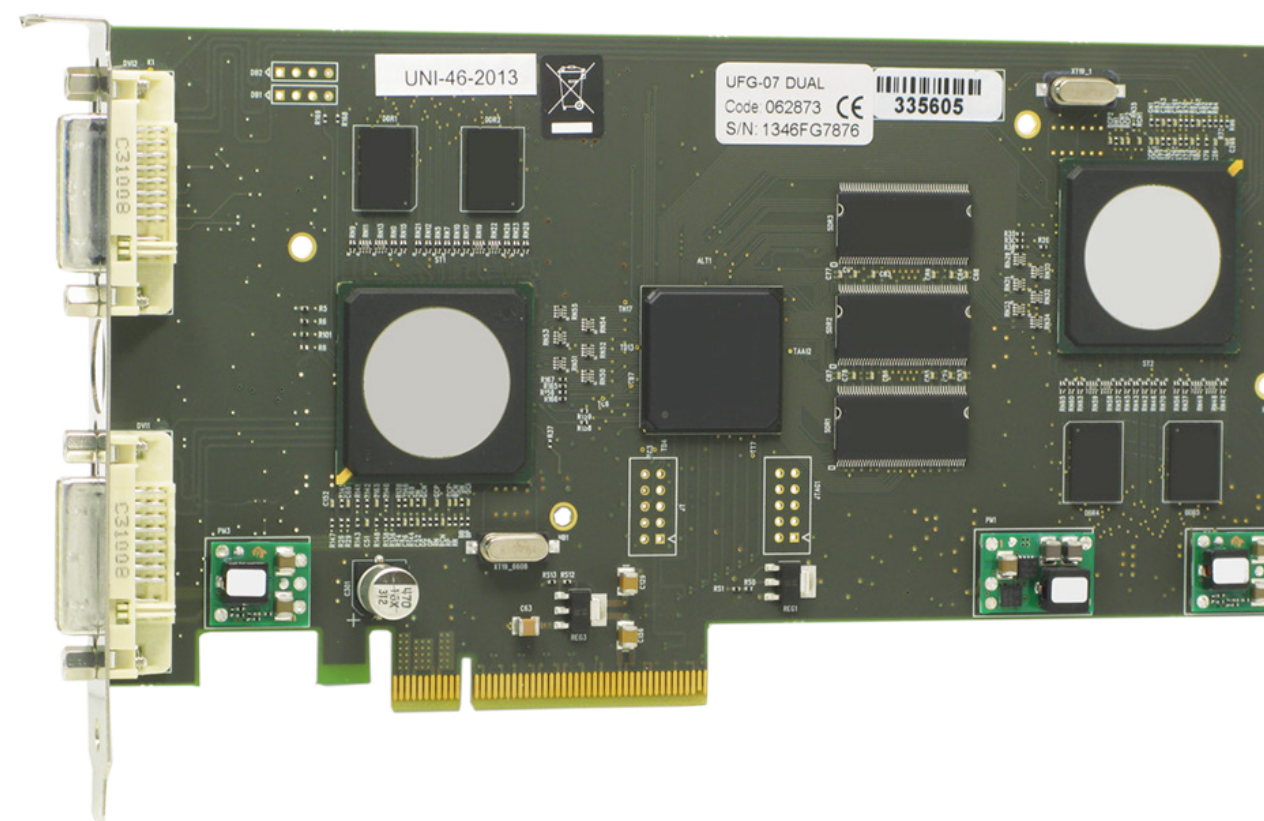
UFG-07 Dual

HD Capturing in Two Channels

- Full Frame Rate capturing up to 1920x1200p60 in both channels
- High Speed 4-lane PCIe bus
- Combined HDMI/DVI and RGB/YPbPr in DVI-I connectors
- DirectShow AVSteam driver with configuration dialog

For more information, please visit:

www.unigraf.fi/products/video-capture-boards/ufg-07-dual



UFG-07 HS Dual

High Speed 8-lane PCIe bus

- Full Frame Rate capturing up to 1920x1200p60 in both channels
- High Speed 4-lane PCIe bus
- Combined HDMI/DVI and RGB/YPbPr in DVI-I connectors
- DirectShow AVSteam driver with configuration dialog

For more information, please visit:

www.unigraf.fi/products/video-capture-boards/ufg-07-hs-dual

