# 980 Series & M4 Series Product Selection Guide

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980 Series – M4 Series
Product Selection Guide

Platforms: **980B Advanced Test Platform** · **M41h** · **M41d**

| Feature | Description | HDMI 48G Protocol Analyzer / Generator | M41h 48G Video Analyzer / Generator | HDMI 18G Protocol Analyzer / Generator | HDMI 18G Video Generator | DisplayPort 1.4 USB-C/eDP Generator / Analyzer | M41d HBR3 Video Analyzer / Generator |
|---|---|---|---|---|---|---|---|
| **Form Factor** | **Description** | | | | | | |
| Compact Size | Small compact - Stackable | | ● | | | | ● |
| Orientation | Horizontal or vertical orientation | | ● | | | | ● |
| Embedded Display | Embedded display for management | ● | | ● | | ● | |
| Remote Management | Management through external PC Host | ● | ●1 | ● | ● | ● | ●1 |
| **Interface Technology / Feature** | **Description** | | | | | | |
| Tx HDMI 1.4 165MHz | Test HDMI sink devices up to 165MHz | ● | ● | | ● | | |
| Tx HDMI 225 MHz | Test HDMI sink devices up to 225MHz | ● | ● | | ● | | |
| Tx HDMI 300 MHz | Test HDMI sink devices up to 300MHz (9G) | ● | ● | | ● | | |
| Tx HDMI 600 MHz | Test HDMI sink devices up to 600MHz (18G) | ● | ● | | ● | | |
| Tx HDMI 1500 MHz | Test HDMI FRL sink devices up to 1500MHz (48G) | ● | ● | | | | |
| Rx HDMI 225 MHz | Test HDMI source devices up to 225MHz | ● | ● | ● | | | |
| Rx HDMI 300 MHz | Test HDMI source devices up to 300MHz | ● | ● | ● | | | |
| Rx HDMI 600 MHz | Test HDMI source devices up to 600MHz | ● | ● | ● | | | |
| Rx HDMI 1500 MHz | Test HDMI FRL source devices up to 1500MHz (48G) | ● | ● | | | | |
| Tx DisplayPort 1.4 | Test DisplayPort display devices up to HBR3 link rates | | | | | ●1 | ●1 |
| Rx DisplayPort 1.4 | Test DisplayPort source devices up to HBR3 link rates | | | | | ●1 | ●1 |
| **Compliance Tests** | **Description** | | | | | | |
| HDCP 1.4 HDMI Tx Tests | Supports all source compliance tests for HDCP 1.4 CTS for HDMI | ● | ● | | | | |
| HDCP 1.4 HDMI Rx Tests | Supports all sink compliance tests for HDCP 1.4 CTS for HDMI | | | | | | |
| HDCP 1.4 HDMI Repeater Tests | Supports all repeater compliance tests for HDCP 1.4 CTS for HDMI | | | | | | |
| HDCP 2.2 HDMI Tx Tests | Supports all source compliance tests for HDCP 2.2 CTS for HDMI | ●1,2 | ●1,2 | | | | |
| HDCP 2.2 HDMI Rx Tests | Supports all sink compliance tests for HDCP 2.2 CTS for HDMI | ●1,2 | ●1,2 | | | | |
| HDCP 2.2 HDMI Repeater Tests | Supports all repeater compliance tests for HDCP 2.2 CTS for HDMI | ●1,2 | ●1,2 | | | | |
| HDMI 1.4 TMDS Source Tests | Supports Protocol, video, audio, DVI and advanced features source compliance tests for HDMI 1.4 CTS | ●7 | ● | | | | |
| HDMI 1.4 TMDS Sink Tests | Supports Protocol, video, audio, DVI and advanced features sink compliance tests for HDMI 1.4 CTS | ●7 | ● | | | | |
| HDMI 2.0 TMDS Source Tests | Supports Protocol, video, audio, metadata tests on source devices for HDMI 2.0 CTS | ●7 | ● | | ●2,3 | | |
| HDMI 2.0 TMDS Sink Tests | Supports Protocol, video, audio, metadata features tests on sink devices for HDMI 2.0 CTS | ●4 | ●4 | ●2,3 | | | |
| HDMI 2.1 FRL Source Tests | Supports Protocol, video, audio, metadata tests on source devices for HDMI 2.1 CTS | ●7 | ● | | | | |
| HDMI 2.1 FRL Sink Tests | Supports Protocol, video, audio, metadata features tests on sink devices for HDMI 2.1 CTS | ●7 | ● | | | | |
| HDMI 2.1 eARC Tx Test (Common Mode) | Supports common mode test for eARC Tx devices HDMI 2.1 CTS | ●7 | ● | | | | |
| HDMI 2.1 eARC Tx Test (Differential Mode) | Supports differential mode (audio) tests for eARC Tx devices HDMI 2.1 CTS | ●7 | ● | | | | |
| HDMI 2.1 eARC Rx Test (Common Mode) | Supports common mode test for eARC Rx devices HDMI 2.1 CTS | ●7 | ● | | | | |
| HDMI 2.1 eARC Rx Test (Differential Mode) | Supports differential mode (audio) tests for eARC Rx devices HDMI 2.1 CTS | ●7 | ● | | | | |
| HDMI 2.1 Gaming Source Tests | Supports Gaming compliance test for HDMI source devices HDMI 2.1 CTS | ●5 | ●5 | ● | | | |
| HDMI 2.1 Gaming Sink Tests | Supports Gaming compliance test for HDMI sink devices HDMI 2.1 CTS | ●5 | ●5 | | | | |
| DisplayPort 1.4 Link Layer Source Tests | Supports Source Link Layer (link train., EDID/DPCD, link main., video, power mgt, audio, FEC) tests for DP 1.4 CTS | | | | | ●6,7 | ●6,7 |
| DisplayPort 1.4 Link Layer Sink Tests | Supports Sink Link Layer (link train., EDID/DPCD, link main., video, power mgt, audio, FEC tests for DP 1.4 CTS | | | | | ●6,7 | ●6,7 |
| DisplayPort 1.4 DSC/FEC Source Tests | Supports Source DSC / FEC tests for DP 1.4 CTS | | | | | ●6,7 | ●6,7 |
| DisplayPort 1.4 DSC/FEC Sink Tests | Supports Sink DSC / FEC tests for DP 1.4 CTS | | | | | ●6,7 | ●6,7 |
| **Functional Tests (Sources)** | **Description** | | | | | | |
| Real Time Data Analysis | View incoming video, metadata and timing data from source in real time | ● | ● | ●1 | | ●2,5 | ●2,5 |
| Capture/Store Detailed Analysis | Capture/store incoming video, protocol, metadata, control data & timing from source | ● | ● | ●1 | | ●2,5 | ●2,5 |
| EDID Emulation | Emulate any EDID and test source response EDIDs | | | ●1 | | ●2,5 | ●2,5 |
| DP DPCD emulation and editing | Emulate DisplayPort sink DPCD; edit DPCD registers | | | | | ●5 | ●5 |
| DP Multi-Stream Transport emulation | Emulate DisplayPort sink Multi-Stream Transport (MST) | | | | | ● | ● |
| HDCP 1.x authentication | Verify HDCP 1.x authentication w/ HDMI, MHL or DP source device | ● | ● | ●3 | | | |
| HDCP 2.2 authentication | Verify HDCP 2.2 authentication w/ HDMI 2.0 source device | ●3 | ●3 | ● | | | |
| Aux Channel Monitoring | View DDC (HDMI) & Aux Chan & CC bus (DP) transactions and CEC message (HDMI) exchange w/ source | ● | ● | ● | | ●5 | ●5 |
| Timing Analyzer | View detailed timing data, compare with standard timing | ●4 | ●4 | ● | | ●5 | ●5 |
| Frame Compare Test | Test for pixel errors with "golden frame" | | | ● | | ●5 | ●5 |
| Aux Channel Monitoring (Emulate Sink) | View HDMI DDC message exchange passively between HDMI source & sink | | | ● | | | |
| TMDS Gaming Fuctional Tests | Support sink emulation of the varoious HDMI 2.1 "Gaming" formats. Suoort video generation of gaming streams | ● | ● | | | | |
| eARC Rx Common mode | Initiate eARC common mode transmission and monitor transactions and events in Aux Channel Analyzer (ACA) | ● | ● | | | | |
| eARC Rx Differential mode | Generate uncompressed and compressed eARC audio | ● | ● | | | | |
| Embedded DisplayPort (eDP) | Emulate an eDP source for fast link training additional link rates,,alternative scrambler, ALPM, PSR (limited) | | | | | ● | ● |
| Display Stream Compression (DSC) | Capture DSC incoming streams, show PPS, VBE flags, ind of chunk, show DSC Frames, show image in real time | | | | | ●5 | ●5 |
| **Functional Tests (Sinks)** | **Description** | | | | | | |
| Video Pattern Testing | Run video tests using standard resolutions & test patterns, select resolutions, bit depths, chroma subsampling | ● | ● | ●1 | ● | ●5 | ●5 |
| Audio Test Signals | Run audio tests with uncompressed and compressed formats | ● | ● | | ● | ●2,5 | ●2,5 |
| EDID Verification | Read sink EDID in human text | | | | ● | ●5 | ●5 |
| DP DPCD Verification | Read DisplayPort DPCD registers in human text | | | | | ●5 | ●5 |
| HDCP 1.x authentication | Verify HDCP 1.x authentication w/ HDMI or DisplayPort sinks device | | | | ● | ●5 | ●5 |
| HDCP 2.2 authentication | Verify HDCP 2.2 authentication w/ HDMI 2.0 sinks | ● | ● | | | ●5 | ●5 |
| View SCDC registers (HDMI) | Verify SCDC registers of HDMI 2.0 sinks | | | | ● | | |
| TMDS Gaming Fuctional Tests | Support source emulation of the varoious HDMI 2.1 "Gaming" formats. Suoport capturing of incoming gaming streams | ● | ● | | | | |
| eARC Tx Common mode | Respond to eARC common mode transmission and monitor transactions and events in Aux Channel Analyzer (ACA) | ● | ● | | | | |
| eARC Tx Differential mode | Respond to eARC incoming audio, show eARC metadata, eject out through SPDIF | ● | ● | | | | |
| Link Training testing | Verify link training with sink using user selectable parameters | ● | ● | | | ●5 | ●5 |
| DP Multi-Stream Transport | Verify Multi-Stream Transport (MST) function with MST-capable DisplayPort sink device | | | | | ●5 | ●5 |
| Embedded DisplayPort (eDP) | Emulate an eDP sink for fast link training additional link rates,,alternative scrambler, ALPM, Tx Backlight control | | | | | ●4,5 | ●4,5 |
| Display Stream Compression (DSC) | Generate DSC outgoing streams using playback files, select DSC parameters such as bit rate, bit depth | ●3 | ●3 | | | ●5 | ●5 |
| Aux Channel Monitoring (Emulate Source) | View DDC (HDMI) & Aux Chan & CC bus (DP) for Link Training (DP & HDMI FRL) and CEC message (HDMI) exchanges | ● | ● | | ● | ●5 | ●5 |
| HDMI CEC 1.4 Verification | Send/receive any CEC message | | | | ● | | |
| HDMI CEC 1.4 Fault Testing | Test corrupt bits, bit timings changes, arbitration & nack scenarios | | | | ● | | |
| **Functional Tests (Cables/Links)** | **Description** | | | | | | |
| Cable & Link Test (loopback) | Run pseudo-random noise and/or pixel error tests on cables or distribution networks | | | | | ● | ● |
| Aux Channel Passive Monitoring | View HDMI DDC evetns and transactions and, CEC messages. View all AuxChan (DP) transactions | | | ● | | ●1 | ●1 |

**Notes on Form Factor**
1. Also can use externally connected

**Notes on Interface Tech / Feature**
1. Supports these data rates both through the standard DP connector and the USB-C connector.

**Notes on Compliance Test Support**
1. TMDS mode only; FRL mode is future.
2. Industry approved test solution.
3. Refer to datasheets for test sections covered.
4. Read Request test are future.
5. TMDS mode only (FRL mode future).
6. Supported both through the standard DP connector and the USB-C connector..
7. Industry approved compliance tests.

**Notes on Source Functional Tests**
1. Supports HDMI 2.0 testing up to 600MHz.
2. Supports DP 1.4 testing up to HBR3 bit rates.
3. TMDS supported; FRL supported Future.
4. Basic timing analysis only.
5. Supported both through the standard DP connector and the USB-C connector.

**Notes on Sink Functional Tests**
1. Via capture and playback function.
2. Uncompressed LPCM only.
3. DSC implemented through playback of pre-captured files.
4. eDP support is limited to fast link training, alternate scrambler, ALPM and Backlight control.
5. Supported both through the standard DP connector and the USB-C connector.

**Notes on Cable/Link Functional Tests**
1. For DisplayPort, requires custom cable for HBR3 passive monitoring.