

OA Test Omni-Panel Application note.

What is Omni-Panel?

The OA Test Omni-Panel is a unique interconnect solution for test and measurement applications. What it does is to provide a highly flexible modular connectivity interface between test equipment and the device or module being tested. This enables the same test equipment to be used to test a wide variety of devices or modules without disconnecting a single cable! OA Test currently offers two variations of the product: the Omni-Panel, and the mini panel.

How Does it work?

The Omni-Panel consists of a base unit and a rapidly detachable Device Interface Board (DIB). This enables a number of different devices or modules to each be mounted on their own DIB which can then be inter-changed with the base-station which has the hard-wired connections to the user test equipment.

Who would use Omni-Panel?

Basically anyone who has multiple devices or modules of different types that they wish to rapidly connect to their test equipment. At one end of the spectrum this could be a high volume semiconductor or module manufacturer that wishes to rapidly redeploy their test equipment between a number of different product lines. At the other end of the spectrum the Omni-Panel can be used by Engineering or Applications teams who have multiple characterization or application boards for different products, but wish to be able to rapidly interchange boards using a common set of test equipment.

Why Buy Omni-Panel?

When testing multiple devices, we are faced with two options. Either we have one complete dedicated test setup for each type of device being tested – this approach can be extremely costly especially if there are only a few device types being tested at any one time. Alternatively the test equipment can be manually disconnected and moved between different devices being tested, this is less costly but valuable time can be lost due to items being incorrectly connected, or connectors getting damaged. Omni-Panel solves both of these problems by providing a low-cost, reliable interface that can be rapidly reconfigured for testing different devices.

Which Omni-Panel would work best for my application?

This largely depends on the amount of connectivity required. The Mini Omni-Panel is typically enough for many customers providing up to 8 modular connectivity slots which can each house up to 60 mixed signal/power connections or up to 8 RF connections. This gives a total of up to 480 mixed signal pins or 64 coaxial RF connections or a combination of both. For those with more demanding requirements we have the Maxi Omni-Panel which has 36 modular slots and so can accommodate slots which can each house up to 60

mixed signal/power connections or up to 8 RF connections. This gives a total of up to 2,160 mixed signal pins or 288 coaxial RF connections or a combination of both. This should provide ample future capacity for even the most demanding of test requirements.

Product Specifications

Introduction

The OATest Omni-Panel and Mini-Panel are designed to assist customers to maximize useage of test equipment resources. They consist of a base unit which is connected to either a tester or selection of test equipment, and a Dut Interface Board (DIB) which can be rapidly removed and replaced to facilitate testing of many different types of device using the same test equipment.

High quality SMA RF Connection Module

OATest has much flexibility here, for those seeking maximum durability we recommend use of the high quality SMA terminations for RF interconnect.

Specification:

Number of co-axial RF connections: 2,4,6, or 8.

Connector type: High quality SMA.

Bandwidth: DC- 26.5GHz.

Insertion loss: $0.08 \sqrt{F}$ dB

VSWR: $1.05 + 0.005\sqrt{F}$:1.

Ultra- Broadband SMP RF Connection Module

For those seeking the ultimate in performance, we recommend using the SMP connection both as the DUT interface and as the user interface on the base unit. These give excellent signal integrity and boast a 40GHz signal bandwidth.

Specification:

Number of co-axial RF connections: 2,4,6, or 8.

Connector type: High quality SMP.

Bandwidth: DC- 40GHz.

Insertion loss: $0.08 \sqrt{F}$ dB

VSWR: $1.05 + 0.005\sqrt{F}$:1.

Mixed Signal Connector Module

OATest has a vast array of mixed signal connectivity solutions, for low-speed control and power there is a family of modular pogo connectors using a standard 0.1” pitch.

Specification:

Number of signal connections, 10,20,30,40,50 or 60 pins.

Number of ground connections, 10,20,30,40,50 or 60 pins.

Maximum path length: 1.5"

User Connector Types:

- DB connectors 9, 15 and 37
- SCSI
- 96 Eurocard
- NI PXI modules
- RTI high speed cable interface

High Speed Mixed Signal Connector Module

The high speed Digital Module is designed to accept up to three Molex 74059 connectors.

The connectors are pressed into a .125 thick gold plated PCB with plated through holes.

High performance pogo pins contact the top of the PCB. Up to 60 signal pins per connector can be used for a total of 180 signal pins per connector.

Specification:

Number of signal connections: 60, 120, or 180.

Number of ground connections: 60, 120, or 180.

Nominal impedance: 50Ohms

Operating frequency: DC-3GHz

User Interface: Gore Eye Opener connector

RF Module Ordering:

DUT interface:

SMA:- SMAD<1,2,4,8>

SMP:- SMPD<1,2,4,8>

Base Interface:

SMA:- SMAB<1,2,4,8>

SMP:- SMPB<1,2,4,8>

Mating Cables

SMA Cable:- SMAC<length in inches>

SMP Cable:- SMAC<length in inches>

Mixed Signal Module Ordering

DUT interface:

DB connectors: DBD<number of pins> 9, 15 and 37

SCSI: SCSID<number of pins>

96 Eurocard:ECD96

NI VHDCI: VHDCI<Number of pins: 68, 80, 140><length in inches>

RTI high speed cable interface: RTID<number of pins>

Base Interface:

DB connectors: DBB<number of pins> 9, 15 and 37

SCSI: SCSIB<number of pins>

96 Eurocard:ECB96

NI VHDCI: VHDCI<Number of pins: 68, 80, 140>

RTI: RTIB<number of pins>

Mating Cables

DBC<number of pins><length in inches>

SCSI: SCSIC<number of pins>

96 Eurocard:ECC96<length in inches>

NI VHDCI: VHDCI<Number of pins: 68, 80, 140><length in inches>

RTI: RTIC<number of pins><length in inches>

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