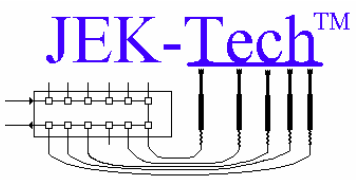


JEK Technical Services, LLC
3 Delta Drive
Nashua, New Hampshire 03060
Phone: (603) 791-4233
FAX: (603) 791-4606

Scan Test Cable Adapter - EXT24

Users Manual

Date: October 2, 2006
Revision: 2.0

JEK Technical Services, LLC
3 Delta Drive
Nashua, New Hampshire 03060
Phone: (603) 791-4233
FAX: (603) 791-4606

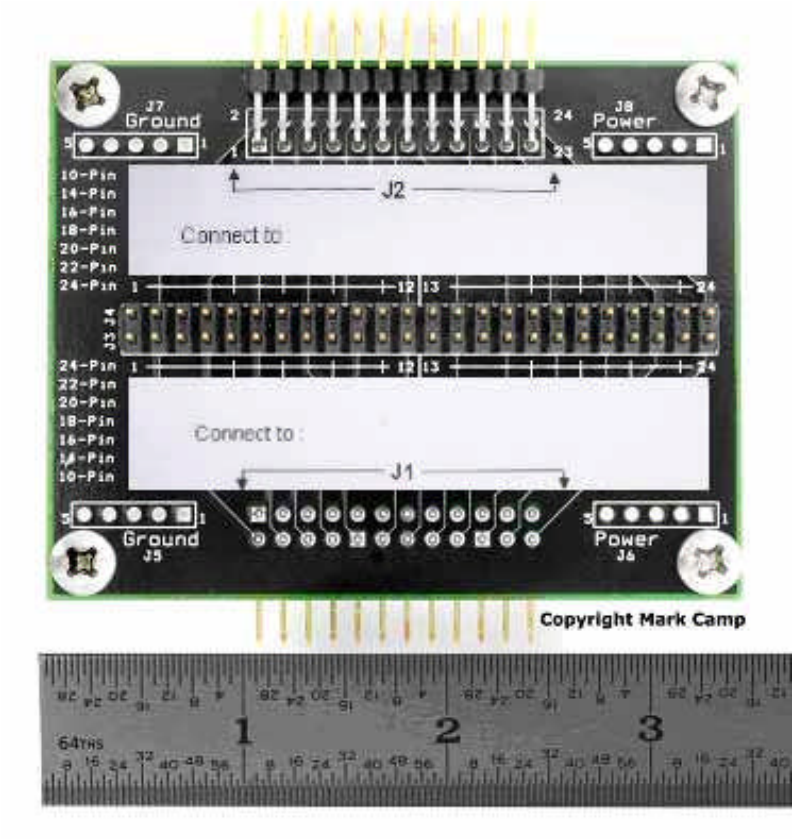
Table of Contents

JEK Technical Services, LLC
3 Delta Drive
Nashua, New Hampshire 03060
Phone: (603) 791-4233
FAX: (603) 791-4606

1. Scan Test Cable Adapter - EXT24

Congratulations on your purchase of the Scan Test Cable Adapter EXT24 product. Whether you are using this product for adapting your Boundary Scan tester to a JEK-Tech™ product or some other Unit Under Test, the ease of use, reusability and flexibility of this product will add value to your test application immediately.

This document covers the EXT24 pin adapter from the JEK-Tech™ Scan Test Cable Adapter product family. This document is intended to provide the user with all the information they will need in order to begin using the Scan Test Cable Adapter EXT24 product.



JEK Technical Services, LLC
3 Delta Drive
Nashua, New Hampshire 03060
Phone: (603) 791-4233
FAX: (603) 791-4606

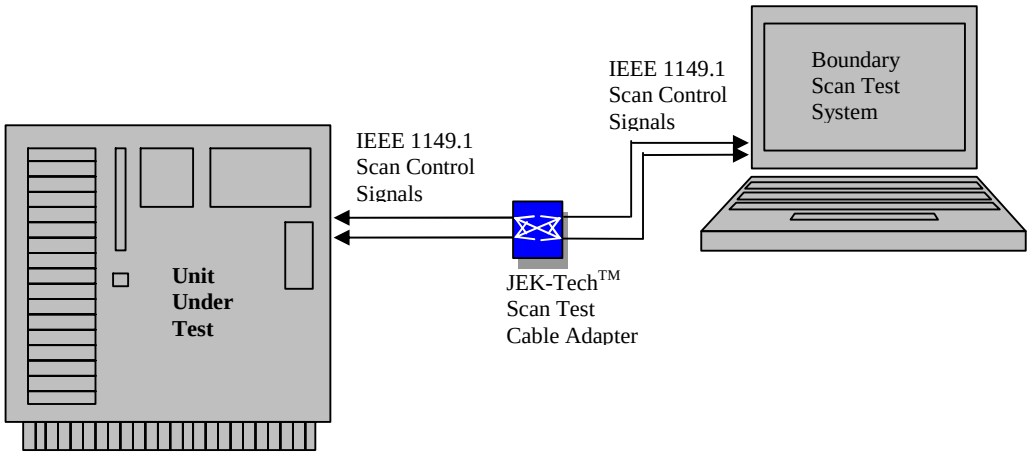
2. Recommended Applications

The Scan Test Cable Adapter EXT24 product is intended to complement your existing Boundary Scan test applications. The Scan Test Cable Adapter provides an easy jumper point for adapting signal pin-outs from any JEK-Tech™ product, your Unit Under Test (UUT) connector or your Boundary Scan Test System.

By using the Scan Test Cable Adapter, you can now replace ribbon test cables with no re-wiring effort. All connector signal crossing/adapting is performed **on** the Scan Test Cable Adapter and no longer at the Ribbon Cable connectors. You can also mark the STCA with a **permanent marker,** so your production personnel will remember how to connect it together!

2.1. Scan Test Signal pin-out conversion

The Scan Test Cable Adapter can be used to change pin-outs from up to a 24-pin UUT connector, to up to a 24-pin Boundary Scan Test System connector. Typically, they are used for converting from 14-20 pin Boundary Scan Test System connectors to 10-16 pin UUT connectors.

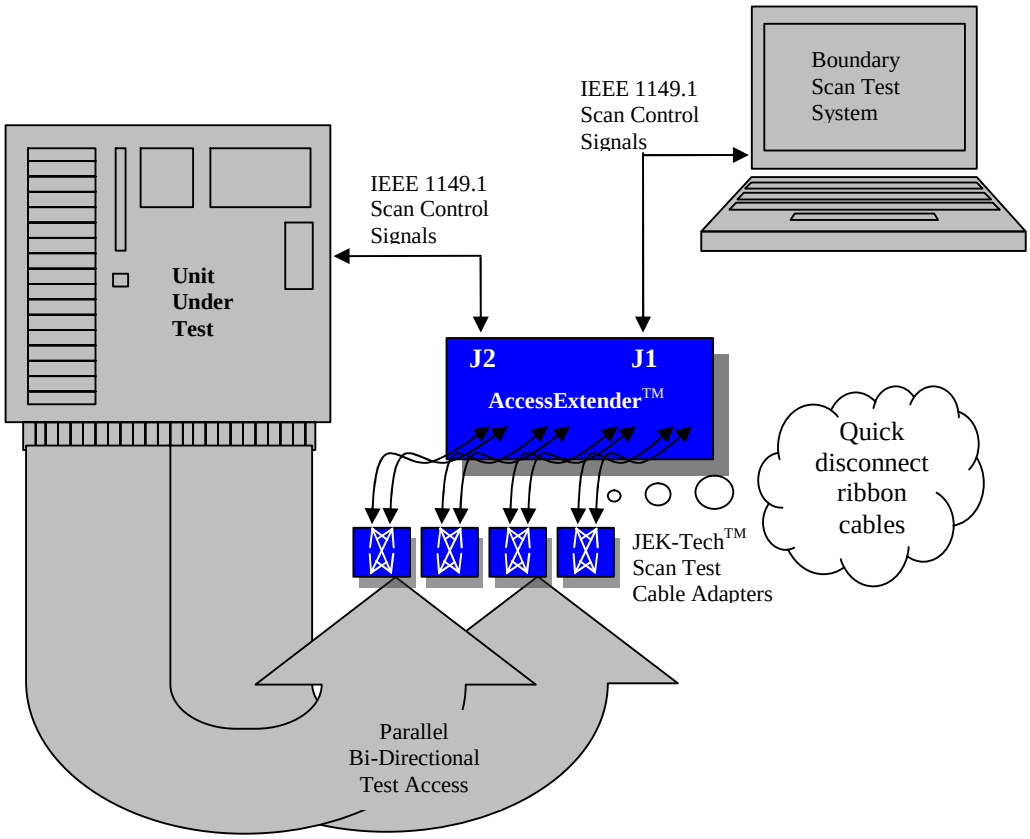


Scan Signal Pin-Out Converter Example

JEK Technical Services, LLC
3 Delta Drive
Nashua, New Hampshire 03060
Phone: (603) 791-4233
FAX: (603) 791-4606

2.2. Embedded or Bed-of-Nails Adapter

The Scan Test Cable Adapter EXT24 can also be used for embedding a quick disconnect cable system within a custom wired (embedded or bed-of-nails type) test fixture. This allows a quick disconnect for re-use of products like the AccessExtender™ on multiple UUT test setups.



Embedded or Bed-of-Nails Adapter Example

JEK Technical Services, LLC
3 Delta Drive
Nashua, New Hampshire 03060
Phone: (603) 791-4233
FAX: (603) 791-4606

3. Power Requirements

No power is required for the Scan Test Cable Adapter EXT24. The Scan Test Cable Adapter contains a power and ground plane in case the user wants to wire in custom circuitry for UUT specific requirements.

Caution: If power is used, please consult JEK-Tech™ for maximum power capabilities of this PCB.

For signal integrity concerns, we recommend that the user wire the power (if unused) and ground plane of the Scan Test Cable Adapter, to your Boundary Scan Test System and UUT's ground signals.

4. EXT24 Connectors

The following connectors are on the adapter board;

- J1 <-> J3 : Up to a 24-pin connector may be used, for up to 2x12 to 1x24 (respective) Jumpering
- J2 <-> J4 : Up to a 24-pin connector may be used, for up to 2x12 to 1x24 (respective) Jumpering
- J5, J7 = Ground Plane Soldering points
- J6, J8 = Power Plane Soldering points

4.1. Connectors and Cables

The Scan Test Cable Adapter EXT24 product uses a 24-pin (2x12 100mil) connector on both the primary In and Out connectors. Two rows of 24-pin (1x24) connectors create the jumper points for signal crossing. Mating cables and connectors for any EXT24 location may be purchased from any electronic supplier.

We recommend cables that are manufactured with a strain relief, for added longevity when connecting and disconnecting from your tester or Unit Under Test.

JEK Technical Services, LLC
3 Delta Drive
Nashua, New Hampshire 03060
Phone: (603) 791-4233
FAX: (603) 791-4606

4.1.1. In or Out (J1 or J2)

We recommend;

- DigiKey part number M3DDA-**xx**18R-ND : 18" Ribbon Cable with **xx** pin female connector at either end, with strain relief and polarizing key.
  - Where the **xx** in the part number is the length in inches you want.
- DigiKey part number CKR**yy**G-ND : Female connector only, ribbon cable not included.
  - Where the **yy** in the part number, is the number of pins you want.

4.2. Pin-outs

The Scan Test Cable Adapter EXT24 product has silk screen markings for J1, J2, J3 and J4, for ease of reference. Below are the pin-out signal definitions for **J1, J2, J3 and J4**. In short definition, there is a one-to-one pin-out correlation for J1<->J3 and J2<->J4. The only differences between these connectors are the 2x12 to 1x24 footprints.

J1 to J3 Pinout Connections

J1		J3
Pin Number		**Signal Name**
.1	Shorted to	.1
.2	Shorted to	.2
.3	Shorted to	.3
.4	Shorted to	.4
.5	Shorted to	.5
.6	Shorted to	.6
.7	Shorted to	.7
.8	Shorted to	.8
.9	Shorted to	.9
.10	Shorted to	.10
.11	Shorted to	.11
.12	Shorted to	.12
.13	Shorted to	.13
.14	Shorted to	.14
.15	Shorted to	.15
.16	Shorted to	.16
.17	Shorted to	.17

JEK Technical Services, LLC
3 Delta Drive
Nashua, New Hampshire 03060
Phone: (603) 791-4233
FAX: (603) 791-4606

.18	Shorted to	.18
.19	Shorted to	.19
.20	Shorted to	.20
.21	Shorted to	.21
.22	Shorted to	.22
.23	Shorted to	.23
.24	Shorted to	.24

J2 to J4 Pinout Connections

J2		**J4**
Pin Number		**Signal Name**
.1	Shorted to	.1
.2	Shorted to	.2
.3	Shorted to	.3
.4	Shorted to	.4
.5	Shorted to	.5
.6	Shorted to	.6
.7	Shorted to	.7
.8	Shorted to	.8
.9	Shorted to	.9
.10	Shorted to	.10
.11	Shorted to	.11
.12	Shorted to	.12
.13	Shorted to	.13
.14	Shorted to	.14
.15	Shorted to	.15
.16	Shorted to	.16
.17	Shorted to	.17
.18	Shorted to	.18
.19	Shorted to	.19
.20	Shorted to	.20
.21	Shorted to	.21
.22	Shorted to	.22
.23	Shorted to	.23
.24	Shorted to	.24

4.3. Cross cabling pin outs

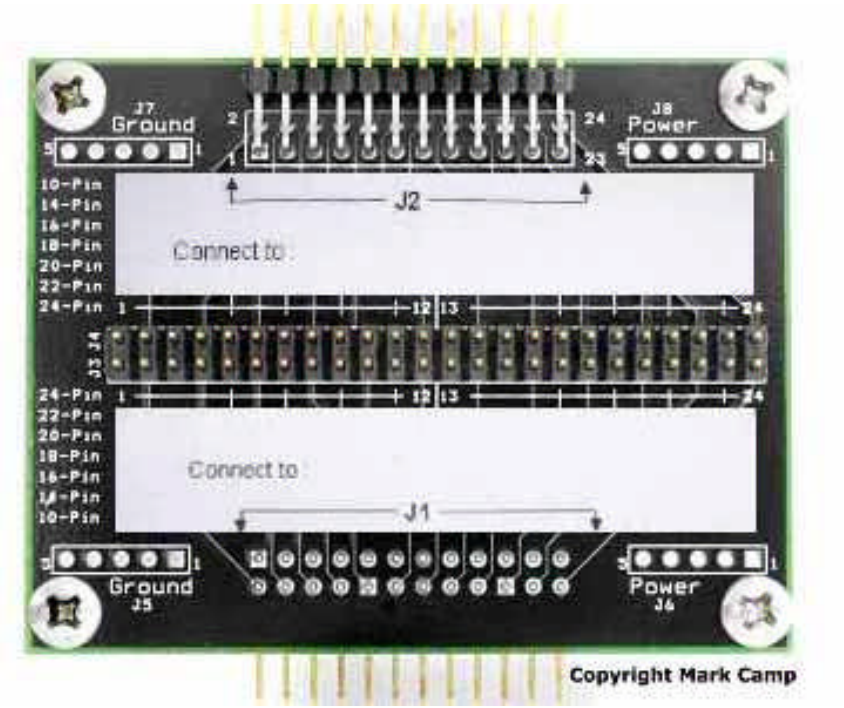
Because the EXT24 can support more than one size connector on either end, special silkscreen and marking aids identifying the J1 and J2 equivalent pins on J3 and J4, respectively.

JEK-Tech™

JEK Technical Services, LLC
3 Delta Drive
Nashua, New Hampshire 03060
Phone: (603) 791-4233
FAX: (603) 791-4606

Here is an example of how to correlate the pin-outs on J3 and J4 to your connector on J1 and J2. Please refer to the picture below while reading this example.

Referring to the top side silkscreen on the J2 side, find the J4 pin numbering from 1-->12 | 13-->24. A 1:1 correlation exists between the J2 and J4 in pin numbering. Repeating this for the J1 and J3 connector sides, a 1:1 correlation also exists between J1 and J3's pin numbering.



With this pin-out map understanding, the user can now jumper J3 and J4 to mate the proper Boundary Scan Tester to UUT pins for the test application.

If power or ground are required, the user can jumper to the power and ground planes, via the Power (J6, J8) or Ground (J7, J5) solder points. If power is used, please consult JEK-Tech™ for maximum power capabilities of this PCB.

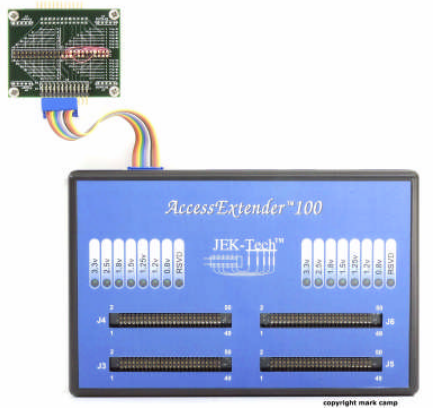
JEK Technical Services, LLC
3 Delta Drive
Nashua, New Hampshire 03060
Phone: (603) 791-4233
FAX: (603) 791-4606

5. Qualification Test Conditions

The following results were achieved under the specified test conditions;

Test setup #1;

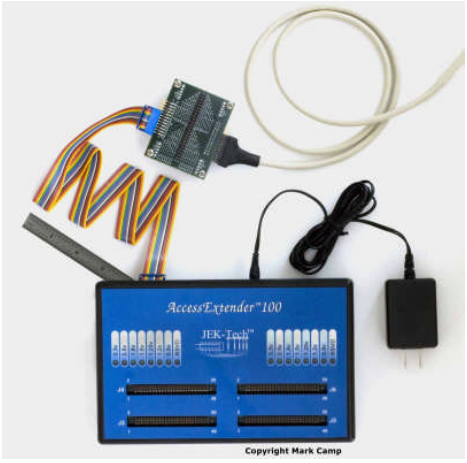
- 3’ Scan Pod cable <–> EXT24 Board <–> 6” UUT ribbon Cable



  - Maximum consistent passing TCK rate : 30 MHz
  - We recommend de-rating this setup condition to run at a max of 26-28 MHz TCK rates

Test setup #2;

- 3’ Scan Pod cable <–> EXT24 Board <–> 2’ UUT ribbon Cable



  - Maximum consistent passing TCK rate : 22 MHz
  - We recommend de-rating this setup condition to run at a max of 18-20 MHz TCK rates

Although your boundary scan tester may be able to run at faster TCK rates, you can only run as fast as the slowest Scan chip in the chain. Meaning, if one chip in your chain is rated for a Maximum TCK rate of 10 MHz, the entire chain **cannot** be run faster than 10 MHz. We recommend checking your chip manufacturers datasheet or BSDL file for the Maximum TCK rate specification.

As with any adapter like this, your actual mileage may vary. Meaning, the maximum TCK frequency at which your test setup (with the EXT24 board) can run at, is dependent upon the line impedance you are shooting the TCK signal into. Signal integrity must be considered when adding different line impedances to your test setup. The EXT24 board was designed to 75ohm +/-10% stack-up impedance.

6. Mechanical Dimensions

The EXT24 PCB is a rectangular 2.2 x 2.8 inches.

The height is dependent on whether you hard-mount with the screw threads on standoff's or not.

- From bottom of octagonal portion of the standoff, to the top of the wire-wrap posts;
  - This hard-mounted height is 0.875 inches.

- From bottom of standoff threads, to the top of the wire-wrap posts;
  - This bench top stand-alone height is 1.125 inches.

Tooling holes are a 156mil drill at dimensions 150,150 : 150,2650 : 2050, 2650 : 2050,150 (mils). The nylon standoff contains a 0.250" long 6-32 threads.

7. Contact Information

JEK Technical Services, LLC
3 Delta Drive
Nashua, NH 03060-5823
Phone: 603-791-4233
FAX : 603-791-4606