



Q'n Apps #S53

Q: How do you use the loopback tests?

Loopback Diagnostics

Included with your Symphony software is a folder called:

C:\Symphony\SysTest\Sw-001-LoopBack

This folder contains a collection of SET, TRN, and CMT files. The purpose of these files is to verify something that the internal diagnostic software cannot test; that the driver/receiver signals are valid all the way out to the DUT board, and that they are able to drive/sense voltage and current levels in compliance with specifications.

To use these files, you must have a special DUT board called a "Loopback board". The LoopBack board simply connects pins together on a per-PEB basis. That is, the Least-significant 16 pins are connected to the Most-significant 16 pins in the following manner:

PEB1			PEB2			PEB(etc)
Ch.1	to	Ch. 17	Ch.33	to	Ch. 49	And so on for all remaining PEBs installed in system
Ch.2	to	Ch. 18	Ch.34	to	Ch. 50	
Ch.3	to	Ch. 19	Ch.35	to	Ch. 51	
Ch.4	to	Ch. 20	Ch.36	to	Ch. 52	
Ch.5	to	Ch. 21	Ch.37	to	Ch. 53	
Ch.6	to	Ch. 22	Ch.38	to	Ch. 54	
Ch.7	to	Ch. 23	Ch.39	to	Ch. 55	
Ch.8	to	Ch. 24	Ch.40	to	Ch. 56	
Ch.9	to	Ch. 25	Ch.41	to	Ch. 57	
Ch.10	to	Ch. 26	Ch.42	to	Ch. 58	
Ch.11	to	Ch. 27	Ch.43	to	Ch. 59	
Ch.12	to	Ch. 28	Ch.44	to	Ch. 60	
Ch.13	to	Ch. 29	Ch.45	to	Ch. 61	
Ch.14	to	Ch. 30	Ch.46	to	Ch. 62	
Ch.15	to	Ch. 31	Ch.47	to	Ch. 63	
Ch.16	to	Ch. 32	Ch.48	to	Ch. 64	

The concept allows each driver to drive signal into another pin's receiver. This tests the function of the relays at each driver/receiver junction that connects tester channels to the DUT board. It also tests the signal connectivity through the loadboard to the DUT board.

LoopBack Files

The naming format for the files mentioned above is:

SW-001-C-<number of pins>-<Ls2Ms or Ms2Ls>.<extension>

Where:

Number of pins = total number of installed channels to be tested

Ls2Ms = Least significant 16 pins driving receivers of Most significant pins

Ms2Ls = Most significant 16 pins driving receivers of Least significant pins

Extension = .set (setup file), .trn (vectors) or .cmt (comment file, disregard)

So when loading the file SW-001-C-32-Ls2Ms.set, the .set and .trn files in which channels 1-16 will drive a vector pattern into channels 17-32. The patterns will be virtually identical, so a RUN of functional vectors verifies that connectivity is good.

After running SW-001-C-32-Ls2Ms.set, load and run SW-001-C-32-Ms2Ls.set & .trn. This verifies the test pattern with data direction reversed.

In addition to functional patterns, there are four DCPMU tests in each .set file. These tests check all pins for proper voltage and drive characteristics. For each .set file loaded, all DCPMU tests should be run in addition to the functional vectors.

If the LoopBack test is something you intend to use frequently, you may wish to create an AutoTest file (.atx). This would load the first .set & .trn files, run vectors and all DCPMU tests, and then do the same with the complimentary .set & .trn files.

See also:

Q'nApp #S1: PinList

Q'nApp #S3: Autotest

Q'nApp #S12: Autotest

Q'nApp #S16: ETS2k Files

Q'nApp #S25: Drivers & Receivers

Q'nApp #S26: Functional test preparation

Q'nApp #S34: DUT Board Compatibility

Q'nApp #S35: DCPMU