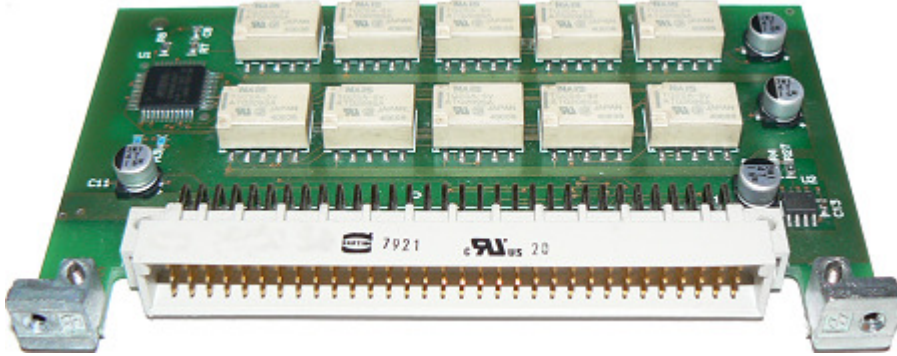




Model: BSPIO-RELE5



Features

- JTAG environment analog cluster test and measurement support
- Relay Multiplexer Demultiplexer, 5x4 or 10X2 or 20X1 Channels.
- 9 I/O TTL, drives 3.3V logic, 5V tolerant
- High reliability DIN41612 I/O connector
- Reliable screw lock brackets
- Size 122mmx70mm
- I/O organized in 1 segment
- 96 bits Boundary-scan Register Length
- Each segment can be independently bypassed
- Medium-speed 10MHz TCK for high reliability at the best cost/performance ratio
- Fully-compatible JTAG/IEEE 1149.1 Test Access Port (TAP)
- Operating power 3.3V, 5.0V
- Optional LVDS TCK interface can be used in large fixtures to avoid noise and skew problems.

General Description

The BSPIO-RELE5 provides parallel-scan controlled access to up to 20 electrical analog nodes for driving analog signal inputs or sensing analog signal outputs. This module adds to the JTAG fixtures the capability of analog tests and measurements integrated with the UUT boundary-scan or traditional control logic. The BSPIO-RELE5 is available in two basic versions, both compatible with the standard DIN41612 female connectors in a test fixture. One version, the BSPIO-RELE5-A1, primarily intended for test fixtures with few BSPIOs, and contains a standard TTL interface on the TAP's TCK signal. This module facilitates boundary-scan interconnection testing using a direct connection to the JTAG/IEEE 1149.1 Test Access Port (TAP). The other version, the BSPIO-RELE5-A2, is intended for test fixtures with many BSPIOs and contains a balanced LVDS interface on the TAP's TCK signal. This module facilitates boundary-scan interconnection testing using a small interface connection to the JTAG/IEEE 1149.1 TAP.

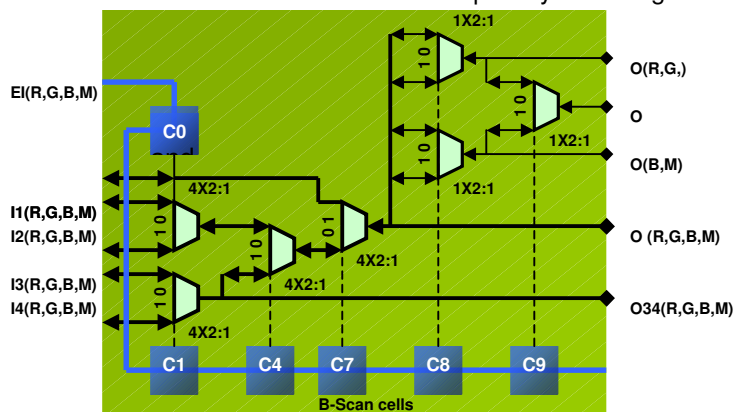


Fig.1 Mux Demux Connection

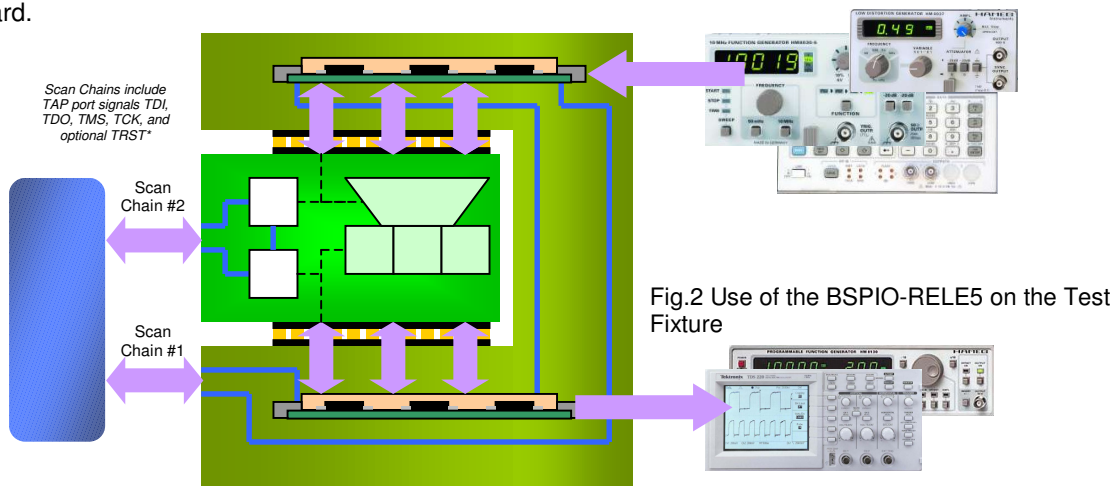
Functional Description

The BSPIO-RELE5 can be connected using 6 different configurations with either 1 or 2 MUX/DEMUXs. Multiple BSPIO-RELE5s can be cascaded to form larger MUX/DEMUX devices.

MUXA-DEMUXA			MUXB-DEMUXB		
Configuration	Inputs	Outs	Configuration	Inputs	Outs
4 MUX 5X1	I1(RGBM)-I5(RGBM),EI(RGBM)	O(RGBM)			
2 MUX 10X1	I1(RGBM)-I5(RGBM),EI(RGBM)	O(RG), O(BM)			
1 MUX 20X1	I1(RGBM)-I5(RGBM),EI(RGBM)	O			
4 MUX 3X1	I1(RGBM),I2(RGBM),EI(RGBM)	O(RGBM)	4 MUX 2X1	I3(RGBM),I4(RGBM)	O34(RGBM)
2 MUX 6X1	I1(RGBM),I5(RGBM),EI(RGBM)	O(RG), O(BM)	4 MUX 2X1	I3(RGBM)-I4(RGBM)	O34(RGBM)
1 MUX 12X1	I1(RG),I2(RG),EI(RG)	O	4 MUX 2X1	I3(RGBM)-I4(RGBM)	O34(RGBM)

Tab.1 Possible multiplex configurations

Test and programming application development tools from JTAG Technologies support integration of the BSPIO-RELE5 with the target board design by adapter file and some additions to the UUT net-list. This allows the MUX and DEMUX of the BSPIO-RELE5 to be controlled via boundary-scan logic on the BSPIO, allowing the analog input and output of the UUT. It is possible to test both AD converters and control DA converters by means of the boundary-scan logic of the UUT and/or of the fixture. The BSPIOs are capable of operating at a 10 MHz TCK clock rate. The TAP interface available on DIN41612 connector is the test access port for the module. It can be used to daisy-chain the module to other BSPIO modules (BSPIO-78TTLU, BSPIO-OPTO1212...) or to scan chain on the target board.



The instrumentation can be connected (HP-IB-USB-ETH) to a PC. The entire test bench, including the UUT and fixture boundary-scan logics, can be controlled with measurement software developed in Basic or Labview.

Specifications

Length of ID Register	32 bits per segment
Length of Boundary-scan Register	96 bits per segment, 1 segments
Maximum Shift Frequency	10MHz
Power Consumption	typ<20mA, max depending on the target IOH and IOL

DC Operating Conditions

TTL I/O	V _{IL} <0.8V V _{IH} >2.0V 5V tolerant, I _{IN} < 10μA I _{OL} <8 mA, I _{OH} <8 mA drive 2.4V < V _{OH} < 3.3V, V _{OL} < 0.4V
Relay contact	0.5A at 125VAC; 1A at 30VDC, 60 mΩ. 200,000 operations (0.1A inductive load)
TAP (*1)	All V _{IL} <0.8V V _{IH} >2.0V
TAP TCK(*2)	1<V _{OS} <1.65 V _{TH} /V _{TL} =+/-100mV

(*1) Not Applicable to TCK version A2

(*2) Applicable to TCK version A2

Ordering Information

GEB P.N. (*)	Description
BSPIO-RELE5-A1/A2	16 RS485 I/O, 8 LVDS I/O, 8 RS232 Input, 8 RS232 Output

(*) Odd-numbered versions (A1,A3...) have LVTTTL level on TCK input, Even numbered versions (A2,A4...) have balanced LVDS levels on TCK input



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