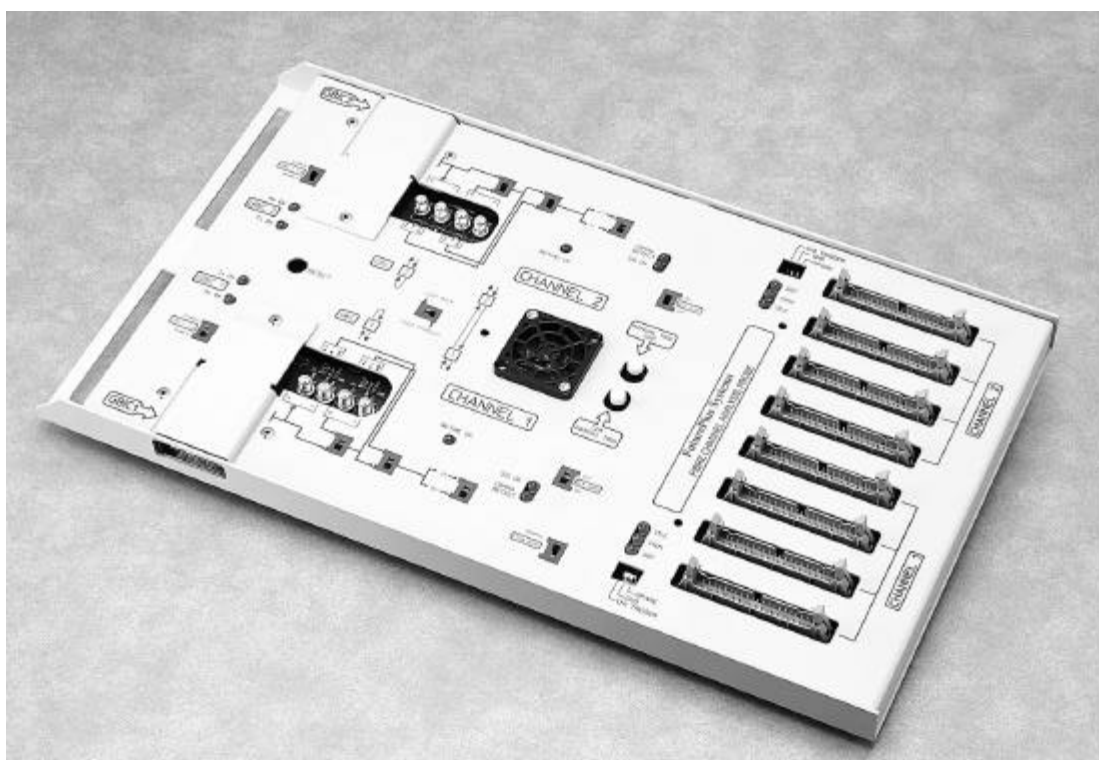


## FibreChannel Analysis Probe For Use With Agilent Logic Analyzers

The FS4300 Fibre Channel Analysis Probe is a general purpose bus monitor which receives and preprocesses parallel data from any standard Fibre Channel Gigabit Interface Converter (GBIC). It decodes the received transmission characters to data words and recognizes their location within the frame. Observing the data flow, the FS4300 presents the decoded data words and additional signals, such as qualifiers and appropriate clock signals, to Agilent logic analyzers. Software is included that configures the logic analyzer to present a readable display that lists the transaction type, address, data, link status information and error indications symbolically. The user can select trigger conditions that filter the data to acquire only the chosen transactions.

### Features

- Monitors 1.062 Gbps Fibre Channel links using standard GBIC's.
- Links may be operated independently or interconnected. Both links provide for clock re-timing.
- Provides 32-bit decoded words and all necessary qualifier and clock signals for the supported logic analyzer modules.
- Provides flexible triggering on a range of events during a link transaction.
- Links may be connected using industry standard GBICs or via 50 ohm SMA connectors allowing the use of a pattern generator or other Fiber Channel test equipment to drive or monitor a link. Traffic on one port (e.g. Channel 1 GBIC) is available for monitoring on the related port (e.g. Channel 1 SMA).
- Activity LEDs provide a simple means to determine the link status, such as data valid or frame duration.
- Can detect several link errors such as a failing link, an 8B/10B coding error or a framing error.



## **FS4300 Description:**

The FS4300 Fiber Channel Bus Analysis Probe provides two functions:

- 1) Provides an **electrical and mechanical interface** from the Fibre Channel Bus to Agilent Technologies logic analyzers for passive bus analysis.
- 2) Provides software to set up the Agilent logic analyzer and to allow powerful state analysis in real time of the Fibre Channel bus transactions.

### **State Analysis Mode**

The software included with the FS4300 contains complete configuration files and a FuturePlus Fibre Channel Transaction Inverse Assembler for your Agilent logic analyzer. The Agilent logic analyzer is used in state analysis mode, where the analyzer master clock is derived from the Fibre Channel Protocol. The Fibre Channel serial data is converted to parallel data in the analysis probe. This allows easy triggering, store qualification and performance monitoring of the Fibre Channel bus. The FS4300 Transaction Inverse Assembler translates the FS4300 data into a readable display that lists the transaction type, address, data, link status information and error indications.

### **Triggering, Filtering and Store Qualification**

The Agilent logic analyzer may be triggered on information such as the Frame Type, the Source Node ID, the Destination Node ID and Word Type (inter-frame primitives, frame header, data payload, CRC). The Frame Type may be used to qualify storage. In addition a marker for each "section" in a frame can be used to qualify storage using one or more specific words within the frame. Push button switches support a manual trigger condition for each link that may be used to monitor bus activity in the event that an expected trigger condition does not occur. Predefined condensed acquisition modes can be chosen to prevent Idles and recurring Primitive Sequences from being acquired, thus saving trace memory and providing an easier to read state display.

### **Agilent Logic Analyzers Supported**

**4 logic analyzer pods per channel are required for state analysis; 8 pods will allow state analysis of both channels.**

#### **Logic Analysis Systems**

##### **(Requires Logic Analysis Module)**

Agilent 16700A/702A Logic Analysis System

Agilent 16500B/C Logic Analysis System

Agilent 16505A Prototype Analyzer (requires 16500B/C)

#### **Logic Analysis Modules**

Agilent 16550A (6 pods)

Agilent 16554A, 16555A/D, 16556A/D, 16557D (4 pods)

Agilent 16710A, 16711A, 16712A (6 pods)

Agilent 16715A, 16716A, 16717A, 16718A, 16719A (4 pods)

To assist in optimizing the use of the logic analyzer's trace memory, the FS4300 provides the means to filter data before it is presented to the logic analyzer. Filtering may be implemented for inter-frame primitives (e.g. IDLE and ARB) or for FCP\_DATA payload. If inter-frame primitives are filtered, the FS4300 provides an indication of how many primitives of the same type occur sequentially. If the FCP\_DATA is filtered, the FS4300 passes the first 4 words of the payload to the logic analyzer.

### **Performance Analysis**

The FS4300 analysis probe and Agilent's B4600A System Performance Analysis (SPA) software turn your Agilent logic analyzer into a powerful Fibre Channel system performance monitor. You can generate statistical representations of data captured by the FS4300 which will help you to (1) find bus transactions being used most often, (2) identify inefficiencies in a peripheral, or (3) identify processes that are using too much CPU time.

### **Cross-Domain Analysis**

Are you analyzing data in multiple domains? Simply use this analysis probe to monitor the Fibre Channel bus, and then use another FuturePlus Systems analysis probe to monitor your other bus. We have analysis probes for the AGP, PCI, ISA, VME, VXI, PMC, SCSI, USB, Rambus, DIMM and SIMM buses. You can create your own custom measurement system, cross-domain trigger between buses, and view data from multiple buses simultaneously in the same display. In a similar fashion, you could connect an analysis probe for your host processor to another logic analyzer card. You could then use Agilent's Software Analyzer (B4620A) to view source code, code execution, and the corresponding Fibre Channel traffic simultaneously.

# State Analysis

Listing<1> File Edit Options Invasm Source Help

Navigate Run

Search Goto Markers Comments Analysis Mixed Signal

Label 20s Value when Present Next Prev

Advanced searching... Set G1 Set G2

Time	FUTUREPLUS SYSTEMS c 1999	WrdsTyp	Count	FrmTyp
Absolute	Fibre Channel BUS TRANSACTIONS	Symbols	Hex	Symbols
-5,315 ms	IDLE	Primitive	000	ABSOLUTE 0
0 s	SOF13	SOF (Node	000	FCP_CMND
32,000 ns	IFCP_CMND DID: 4	Header	000	FCP_CMND
72,000 ns	IS_ID: 2	Header	001	FCP_CMND
112,000 ns	IFCP_OI..L.rX..--UU..--00.0-0	Header	002	FCP_CMND
144,000 ns	ISEQID:00 DFCTL:00 SEQCT:0	Header	003	FCP_CMND
184,000 ns	IDX_ID: 2 RX_ID: FFFF	Header	004	FCP_CMND
224,000 ns	IParameter: 0	Header	005	FCP_CMND
264,000 ns	FCP_LUN L1:PD B:00 T/L:00	Payload	000	FCP_CMND
296,000 ns	FCP_LUN	Payload	001	FCP_CMND
336,000 ns	Read.SimpleQ	Payload	002	FCP_CMND
376,000 ns	CDB: 08000010 Read(6 byte)	Payload	003	FCP_CMND
408,000 ns	CDB: 01000000	Payload	004	FCP_CMND
448,000 ns	CDB: 00000000	Payload	005	FCP_CMND
488,000 ns	CDB: 00000000	Payload	006	FCP_CMND
528,000 ns	FCP_DL: FFFF	Payload	007	FCP_CMND
560,000 ns	*CRC: 7E01C770	CRC (good)	008	FCP_CMND

An easy-to-read, well organized state transaction listing shows you all the information you need to solve complex hardware and software problems on your Fibre Channel.

An alternative Fibre Channel state listing with no data payload, header only.

All payload suppress File Edit Options Invasm Source Help

Navigate Run

Search Goto Markers Comments Analysis Mixed Signal

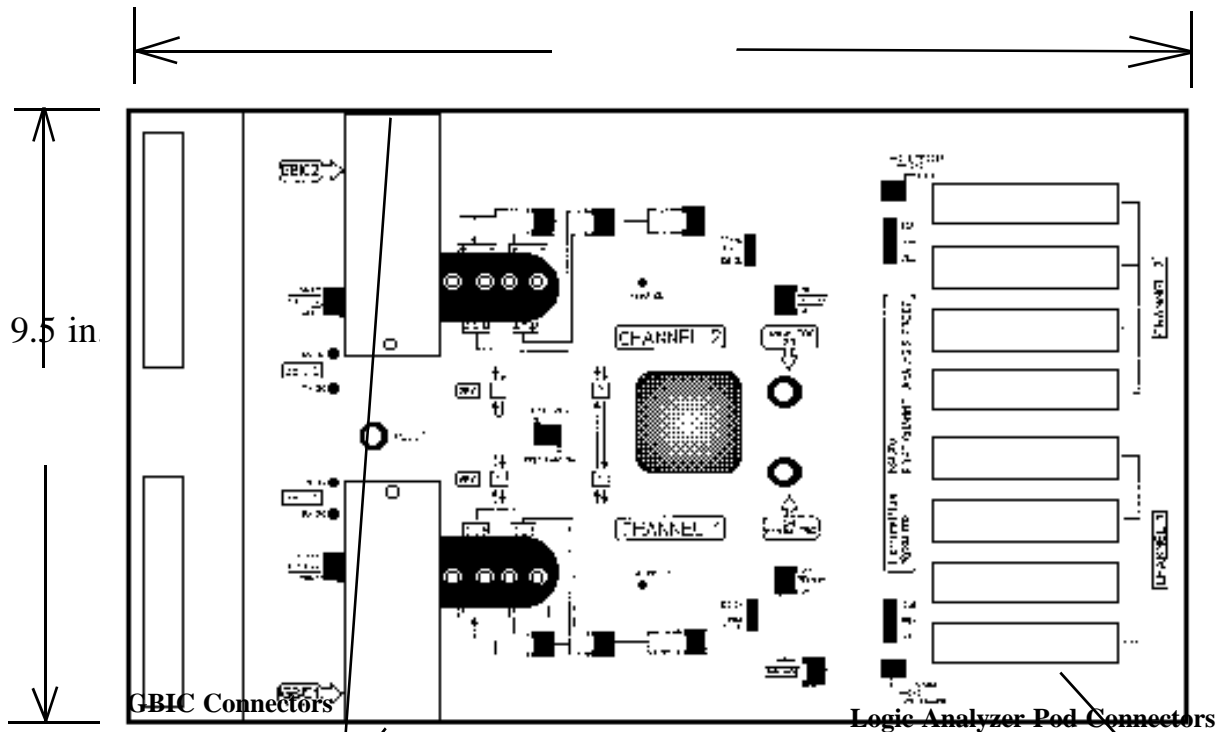
Label 20s Value when Present Next Prev

Advanced searching... Set G1 Set G2

State Number	FUTUREPLUS SYSTEMS c 1999	DATA	STAT	Count	Fr
Decimal	Fibre Channel BUS TRANSACTIONS	Hex	Hex	Hex	He
-1	SOF13	01000002	00390200	000	081
0	IDATA_OUT DID: 1	01000001	41390200	000	081
1	IS_ID: 2	00000002	41390201	001	081
2	IFCP_OI..L.OX..--UU..--00R0-0	08090008	41390202	002	081
3	ISEQID:FF DFCTL:00 SEQCT:0	FF000000	41390203	003	081
4	IDX_ID: 2A2A RX_ID: 0	2A2A0000	41390204	004	081
5	IRe1Offset: 0	00000000	41390205	005	081
6	SOFn2	03000004	00110200	000	081
7	IDATA_OUT DID: 3	01000003	41110200	000	081
8	IS_ID: 4	00000004	41110201	001	081
9	IFCP_OI..L.OX..--UU..--00R0-0	08090008	41110202	002	081
10	ISEQID:FF DFCTL:00 SEQCT:0	FF000000	41110203	003	081
11	IDX_ID: 2A2A RX_ID: 0	2A2A0000	41110204	004	081
12	IRe1Offset: 0	00000000	41110205	005	081
13	SOFn2	02000001	00110200	000	081
14	IDATA_OUT DID: 2	01000002	41110200	000	081

# Mechanical Drawing - FS4300

16.5 in.



The FS4300 is 1.5 inches tall including feet.

## Product Summary

FS4300..... *We offer excellent technical support and quick delivery*..... Fibre Channel Bus Analysis Probe

Ask about The Bus Analyzer, our customer support newsletter!

Also, download "Basic Triggering and Data Capture With The FS4300 Fibre Channel Analysis Probe" from the Technical Support area of our web site at [www.futureplus.com](http://www.futureplus.com).

## FuturePlus Systems

TEL: 719-278-3540

FAX: 603 471 2738

Internet: [protocol.decode@futureplus.com](mailto:protocol.decode@futureplus.com)

Web: [www.futureplus.com](http://www.futureplus.com)

## In Japan:

**ANDOR Systems Support Co., LTD.**

15-8, Minami-Shinagawa, 2-chome,

Shinagawa-ku,

Tokyo 140, Japan

TEL:03-450-8101

FAX:03-450-8410

Internet: [jandr103@infos.or.jp](mailto:jandr103@infos.or.jp)