

IP Testing June 2000

A copy of the test suite, which explains each of the tests in the table, is available from http://www.iol.unh.edu/testsuites/fc/IP_over_FC.html.

Companies who participated:

Qlogic

Emulex

Brocade

Sun

Crossroads

Interphase

Test

Product	A	B	C	D	E	F	G
ip_frame.ip.fc	FAIL1	Pass	Pass	Pass	FAIL13	FAIL1 FAIL17 FAIL18	FAIL1 FAIL17 FAIL21
request.arp.ip.fc	N/T	Pass	FAIL9	Pass	FAIL13 FAIL14	FAIL1 FAIL17	FAIL22 FAIL9
response.arp.ip.fc	FAIL1 FAIL2	Pass	Pass	FAIL12	FAIL13	FAIL1 FAIL17 FAIL18	FAIL22
response_bad_HW_type.arp.ip.fc	FAIL1 FAIL2	FAIL4	Pass	FAIL12	FAIL13	FAIL1 FAIL17 FAIL18	FAIL22
private_Loop_broadcast.ip.fc	N/T	Pass	Pass	Pass	FAIL15	Pass	Pass
fabric_Loop_broadcast.ip.fc	N/T	Pass	Pass	Pass	Pass	Pass	N/T
private_Loop.authentication.ip.fc	N/T	Pass	FAIL10	FAIL10	FAIL16	FAIL10	FAIL23
fabric_Loop.authentication.ip.fc	N/T	FAIL5	Pass	FAIL5	FAIL5	Pass	FAIL24
changed_AL_PA.authentication.ip.fc	N/T	Pass	Pass	Pass	Pass	Pass	Pass
Class_2_open_sequences.features.ip.fc	N/T	N/T	Pass	Pass	Pass	N/T	N/T
FLOGI.features.ip.fc	N/T	Pass	Pass	Pass	Pass	Pass	Pass
PLOGI.features.ip.fc	N/T	Pass	Pass	Pass	Pass	Pass	Pass
ADISC.features.ip.fc	N/T	FAIL6	Pass	Pass	Pass	FAIL19	Pass
FAN.features.ip.fc	N/T	FAIL7	FAIL7	FAIL7	FAIL7	Pass	N/T
LOGO.features.ip.fc	N/T	FAIL6	Pass	Pass	FAIL6	Pass	Pass
FLOGI.Login_Parameters.ip.fc	N/T	N/T	N/T	N/T	N/T	N/T	N/T
PLOGI.Login_Parameters.ip.fc	N/T	N/T	N/T	Pass	Pass	Pass	Pass
Login.FARP.ip.fc	FAIL3	Pass	Pass	Pass	FAIL6	FAIL6	FAIL25
FARP-REPLY.FARP.ip.fc	FAIL3	Pass	FAIL11	FAIL11	FAIL6	FAIL6	FAIL25

Login_and_Reply.FARP.ip.fc	FAIL3	Pass	FAIL11	FAIL11	FAIL6	FAIL6	FAIL25
Unknown.FARP.ip.	FAIL3	FAIL8	Pass	Pass	Pass	FAIL20	FAIL25

Description of Failures:

FAIL1 - The S_NAA field of the Network Header was set to 0x2 while it should have been set to 0x1.

FAIL2 - The HW_Type field was set to 0x00 06 while it should have been set to 0x00 01.

FAIL3 - The Device transmitted and LS_RJT with reason code 0x1, 'Invalid Command code'

FAIL4 - The Device did not respond to an ARP request with the HW_Type set to 0x00 06.

FAIL5 - The Device does not wait for a FAN but immediately transmits a FLOGI.

FAIL6 - The Device did not transmit anything in response to the ELS Request.

FAIL7 - The Device transmitted a FLOGI while it should have accepted the FAN.

FAIL8 - The Device transmitted a FARP-REPLY. It should not have transmitted anything.

FAIL9 - The Hardware Address of Target field was set to 0x 'FF FF FF FF FF FF' while it should have been set to 0x '00 00 00 00 00 00'.

FAIL10 - After Loop re-initialization, the Device did not transmit an ADISC.

FAIL11 - The Device did not carry over the Match Address Code Points field or the Responder Flags field in its FARP-REPLY.

FAIL12 - After a loop initialization when an ARP request was transmitted by the Testing Station the Device would transmit its ARP response to the Testing Station without first transmitting PLOGI. If the devices had not been previously logged in the DUT would not respond to the ARP request at all.

FAIL13 - The R_CTL field is set to 0x00 while it should be set to 0x04.

FAIL14 - The Device does not broadcast the ARP frame as it should but instead transmits it directly to the attached device. The Network Destination Address is set to the address of the station that the frame is transmitted to rather than to 0xff ff ff ff ff ff since it is not a broadcast.

FAIL15 - The Device does not transmit the ARP as a broadcast. The ARP was transmitted as a unicast packet. If the Device had been connected to a fabric and the loop re-initialized such that it was a private loop the Device did not properly recognize that there was no fabric present and continued trying to broadcast by opening up AL_PA 0x00. Since there no longer was an AL_PA 0x00 the ARP was not received by the other device on the loop and the Device was unable to resolve the address.

FAIL16 - The Device transmitted a PDISC. It should transmit ADISC.

FAIL17 - The high order 12 bits of the network source address was set to 0x '100' instead of 0x '000'.

FAIL18 - After Loop initialization the first IP frame transmitted by the Device does not set the First_Sequence bit.

FAIL19 - The Device transmitted a LOGO in response to the ADISC transmitted by the Testing Station. The Device should have transmitted an ACC.

FAIL20 - The Device re-initialized the loop.

FAIL21 - The Device was unable to communicate with the Testing Station unless the Testing Station transmitted a PRLI ACC in response to the Device's PRLI. Successful completion of PRLI should not be required for IP communication.

FAIL22 - The S_NAA was set to 0x0 while it should have been set to 0x1. The D_NAA was set to 0x0 while it should have been set to 0x1.

FAIL23 - The Device transmitted an ADISC but only after performing PLOGI and PRLI. The intention is that ADISC is used instead of PLOGI and PRLI.

FAIL24 - The firmware on the Device was reporting the Loop as Offline when the Testing station initialized as a fabric. The loop was online and the DUT had logged in with the fabric port.

FAIL25 - The DUT transmitted an LS_RJT with Reason Code 0x0b.

Additional Comments:

- 1) In section 4.2 the portion concerning the HW_Type field is somewhat confusing. It was misunderstood by one company to mean that it is acceptable for them to use either HW_Type 0x01 or 0x06 in their ARP frames.
- 2) In section 5.6 the first sentence regarding the responder actions which must be supported is somewhat confusing and was also misinterpreted.
- 3) Several devices were observed which appeared to always want to be logged in. After receiving a LOGO they would immediately initiate a PLOGI. If the device which initiated the LOGO did so for a reason, such as freeing resources, transmitting it a PLOGI may defeat its purpose.
- 4) Several devices which did not support FARP would transmit an LS_RJT to the FARP-REQUEST. Since these devices are supposed to be supporting RFC 2625 this behavior is clearly wrong. This led me to wonder how devices, which do not support RFC 2625, should respond to a broadcast ELS request that they do not support and is this behavior specified anywhere. My guess would be many would transmit an LS_RJT and it does not seem to me that this is desirable behavior for a broadcast ELS.