GPP Revised Project Proposal Letter Ballot Results: 45:3:0:12 = 60

No: ENDL, Exabyte, FSI

Did not respond: Amdahl, Circuit Assembly Corp, CMD Technology, Interphase,
                 Molex, National Semiconductor, Oak Technology, Quantum,
                 Samsung Semiconductor, Sony, Sun Microsystems, Thomas & Betts

Comments:

ENDL:

GPP has been a project for several years, with the purpose of supporting
SCSI in a variety of generic applications.

There has been no observable market confusion. What there has been is
irritation within the committee over comments made by the GPP editor in
promoting GPP as an alternative to SSP and SBP and FCP. These are internal
committee issues which would have been more properly addressed by rewriting
the scope.

There have been several opportunities to review GPP but those who recently
took a stand opposing it as a standard were not active in the process of
review. Despite the lack of broad participation, it was agreed that the
content of GPP is technically sound and complete.

This action sets the unwelcome precedent of tacitly encouraging members in
the minority to contribute significant time and effort and then denying them
the purpose of their work, a standard.

Either the value of GPP should have been questioned long ago, or the
document should have been allowed to continue as a dpANS.

Exabyte:

The procedure of approving a project and waiting until it is almost complete
to remove its project status seems to be a bad way of doing business. I
object to this procedure. Therefore, I must vote NO.

My voting NO on forwarding this converted proposal for GPP is not indicative
of a position on the content, validity, or usefulness of GPP.

FSI:

Please see document, X3T10/94-___, for this comment. It consists of a
presentation detailing the relative performance of FCP, GPP, and SIP and it
concludes that GPP is faster than FCP and SIP.

X3 SUBGROUP LETTER BALLOT

Authorized by X3 Procedures -- Distributed by X3 Subgroup ___X3T10___

Reference Documents: X3T10/94-099 rev 0 (In April '94 X3T10 Mailing)	Doc: X3T10/94-124r0 Date: May 27, 1994 Proj: 991-D Ballot Period: 30 days
Ballot Closes NOON DATE: **Thursday -- July 7, 1994**	Return to: John B. Lohmeyer AT&T/NCR Microelectronics 1635 Aeroplaza Dr. Colo. Spgs., CO 80916 Fax: 719-597-8225

Subject: Approval of forwarding a *revised project proposal* for a Method for a SCSI-3 Generic Packetized Protocol Technical Report to X3 for approval.

Statement: In January 1994, X3T10 voted to "... take the appropriate steps to convert [GPP] from a dpANS and to publish it as a technical report." In May 1994, X3T10 failed to forward the revised project proposal (that would convert the project to a Technical Report) due to insufficient people present to vote. (See reverse side for more information.)

Question: Do you approve of forwarding the *revised project proposal* on a "Method for a SCSI-3 Generic Packetized Protocol" (X3T10/94-099) to X3 for approval?

YES[1] [ ]   NO[2] [X]

Signature: _____

Name: _____
(Please Print)

Organization Represented: _____
(Please Print)

Principal [X] Alternate [ ]   Date: __6/1/94__

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[1] *American National Standards are developed by the voluntary participation of all parties and with the intention and expectation that the standards will be suitable for wide application. Since their use is likewise voluntary, an affirmative vote does not commit an organization or group represented on the committee to the use of the American National Standard under consideration.*

[2] *If you find that you cannot vote YES and wish to vote NO, please state this and explain the reasons for your position on a separate sheet(s) with each response numbered, and with each page numbered and titled to identify the corresponding Letter Ballot. Electronic submissions of your comments are vastly preferred to expedite the response process. ABSTENTIONS are not permitted on technical issues.*

*Operating under the procedures of The American National Standards Institute.
X3 Secretariat, Computer and Business Equipment Manufacturers Association (CBEMA)
1250 Eye Street NW, Suite 200, Washington, DC 20005-3922
Telephone: 202-737-8888 (Press 1 twice) FAX: 202-638-4922 or 202-628-2829

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[21] From: Dal Allan <dal@endl.com> at WIN 6/13/94 9:41AM (1449 bytes: 34 ln)
To: john.lohmeyer@FtCollinsCO.NCR.COM at WIN
bcc: John Lohmeyer
Subject: GPP
------------------------------ Message Contents ------------------------------

Text item 1: Text Item

Hi John,

You read me right, I did plan to send the comments in a cover letter but
then forgot and faxed the completed response!

GPP has been a project for several years, with the purpose of supporting
SCSI in a variety of generic applications.

There has been no observable market confusion. What there has been is
irritation within the committee over comments made by the GPP editor in
promoting GPP as an alternative to SSP and SBP and FCP. These are internal
committee issues which would have been more properly addressed by rewriting
the scope.

There have been several opportunities to review GPP but those who recently
took a stand opposing it as a standard were not active in the process of
review. Despite the lack of broad participation, it was agreed that the
content of GPP is technically sound and complete.

This action sets the unwelcome precedent of tacitly encouraging members in
the minority to contribute significant time and effort and then denying them
the purpose of their work, a standard.

Either the value of GPP should have been questioned long ago, or the
document should have been allowed to continue as a dpANS.

I. Dal Allan
Principal Member
ENDL

Accredited Standards Committee*
X3, Information Processing Systems

X3 Form 003
04/92

X3 SUBGROUP LETTER BALLOT

Authorized by X3 Procedures -- Distributed by X3 Subgroup ___X3T10___

Reference Documents: X3T10/94-099 rev 0 (In April '94 X3T10 Mailing)	Doc: X3T10/94-124r0 Date: May 27, 1994 Proj: 991-D Ballot Period: 30 days
Ballot Closes NOON DATE: **Thursday -- July 7, 1994**	Return to: John B. Lohmeyer AT&T/NCR Microelectronics 1635 Aeroplaza Dr. Colo. Spgs., CO 90916 Fax: 719-597-8225

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Question: Do you approve of forwarding the *revised project proposal* on a "Method for a SCSI-3 Generic Packetized Protocol" (X3T10/94-099) to X3 for approval?

YES[1] [ ]   NO[2] [X]

Signature: _____

Name: _____Edward LAPPIN_____
(Please Print)

Organization Represented: _____EXABYTE_____
(Please Print)

Principal [X]   Alternate [ ]   Date: 7/7/94

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July 7, 1994
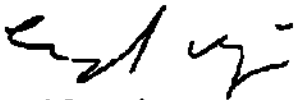
John Lohmeyer
Chair, X3T10

John,

Response to X3T10 letter ballot (Doc X3T10/94-124r0) regarding GPP:

I am voting NO on the forwarding a revised project proposal on GPP to X3.

The procedure of approving a project and waiting until it is almost complete to
remove its project status seems to be a bad way of doing business. I object to this
procedure. Therefore, I must vote NO.

My voting NO on forwarding this converted proposal for GPP is not indicative of a
position on the content, validity, or usefulness of GPP.

Edward Lappin
Exabyte
1685 38th Street
Boulder, CO 80301
(303) 447-7718
tedl@exabyte.com

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Accredited Standards Committee*
X3, Information Processing Systems

X3 Form 003
04/92

X3 SUBGROUP LETTER BALLOT

Authorized by X3 Procedures — Distributed by X3 Subgroup ___X3T10___

Reference Documents:		
X3T10/94-099 rev 0 (In April '94 X3T10 Mailing)	Doc:	X3T10/94-124r0
	Date:	May 27, 1994
	Proj:	991-D
	Ballot Period:	30 days

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Question: Do you approve of forwarding the *revised project proposal* on a "Method for a SCSI-3 Generic Packetized Protocol" (X3T10/94-099) to X3 for approval?

YES[1] [ ]   NO[2] [X]

Signature: _Gary R Stephens_

Name: _GARY R STEPHENS_ (Please Print)

Organization Represented: _FSI Consulting Svcs_ (Please Print)

Principal [X]   Alternate [ ]   Date: _6/18/94_

[1] *American National Standards are developed by the voluntary participation of all parties and with the intention and expectation that the standards will be suitable for wide application. Since their use is likewise voluntary, an affirmative vote does not commit an organization or group represented on the committee to the use of the American National Standard under consideration.*

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FCP, GPP, and SIP Comparisons

In Support of a NO Vote on GPP as a
Technical Report
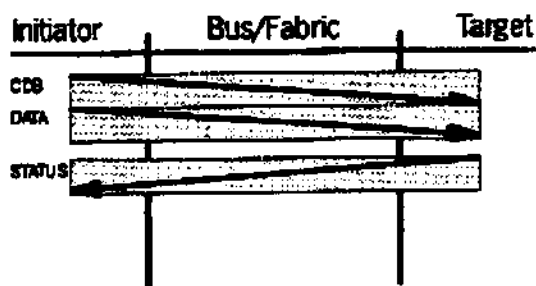RETAIN IT AS A FULL STANDARD

FSI Consulting Services, 1825 N. Norton Ave, Tucson, Az 85719

Basic Assumptions

- Each SCSI device is optimal for processing each protocol

- Processing time is not used in calculations

- Only protocol times are compared

- SIP are estimated for 20 and 40 MB/s
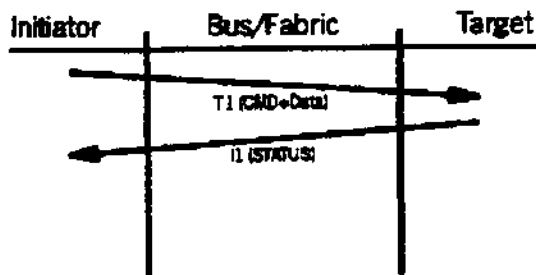
SIP Interactions
(512-Byte WRITE)

One Disconnect after data and status; 25 m

FCP Interactions
(512-Byte WRITE)

Fabric = 2 Km direct cConnection

GPP Interactions - FCS/SIP
(512-Byte WRITE)
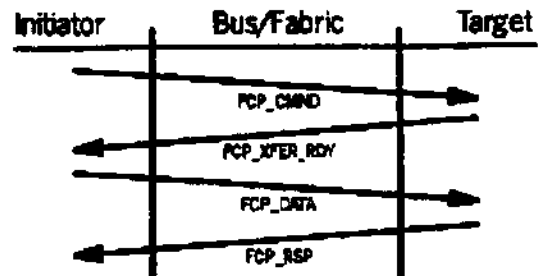
Fabric = 2 Km direct connection

SIP Overhead
(512-Byte WRITE)

- Command transfer requires
  - Connection
  - Identification
  - CDB Transfer
  - Data Transfer
  - Disconnection

- Status transfer requires
  - Reconnection
  - Identification
  - Status Transfer
  - Disconnection

- Total Bytes Transferred - 525
  - IT + IDENTIFY x 2 = 4
  - DISCONNECT x 2 = 2
  - CDB = 6
  - DATA = 512
  - STATUS = 1

FCP Overhead
(512-Byte WRITE)

- FCP_CMND - 60 + 32 = 92
- FCP_XFER_RDY - 60 + 12 = 72
- FCP_DATA - 60 + 512 = 572
- FCP_RSP - 60 + 24 = 84

- Total = 820 bytes

GPP Overheadon FCS
(512-Byte WRITE)

- T1 (CDB+DATA) - 60 + 16 + 12 + 516 = 604
- I1 (Status) - 60 + 16 + 8 + 8 = 92

- Total = 696 bytes

GPP Overheadon SPI
(512-Byte WRITE)

- T1 (CDB+DATA) - 16 + 12 + 516 = 544
- I1 (Status) - 16 + 8 + 8 = 32

- Total = 576 bytes

Overhead Comparisons
(512-Byte WRITE)

- SIP/SPI - 525 Bytes (2.5%)

- FCP - 820 Bytes (60.1%)

- GPP - 696 Bytes (35.9%) on FCS

- GPP - 576 Bytes (12.7%) on SPI

SIP Translated to Time
(512-Byte WRITE)

ITEM	1Gb (uS)	.5Gb	.4Gb	.25Gb	.2Gb	LGTH
CDB			8.00		8.00	8
DATA			13.00		26.00	512
STATUS			8.00		8.00	4
Total			29.00		42.00	525

Bus Length = 25 m

FCP Translated to Time
(512-Byte WRITE)

ITEM	1Gb (uS)	.5Gb	.4Gb	.25Gb	.2Gb	LGTH
FCP_CMND	4.82	6.84		7.56		92
FCP_XFER_RDY	4.72	5.44		6.84		72
FCP_DATA	8.72	15.44		36.83		572
FCP_RSP	4.84	5.84		7.56		84
Total	24.20	33.46		46.80		820

2 Km link Point-to-Point = 4 uS

GPP Translated to Time on FCS
(512-Byte WRITE)

ITEM	1Gb (uS)	.5Gb	.4Gb	.25Gb	.2Gb	LGTH
T1 (CDB-DATA)	10.54	15.05	16.40	26.16	33.20	664
T1 (STATUS)	4.82	5.84	6.80	7.88	7.60	32
Total	14.94	21.92	25.40	35.84	40.40	696

2 Km link Point-to-Point for FCS = 4 uS

GPP Translated to Time on SIP
(512-Byte WRITE)

ITEM	1Gb (uS)	.5Gb	.4Gb	.25Gb	.2Gb	LGTH
CDB			7.55		8.60	24
DATA			12.90		26.60	518
STATUS			6.8		7.60	32
Total			27.05		42.09	578

Bus Length = 25 m

Time Comparisons
(512-Byte WRITE)

ITEM	1Gb (uS)	.5Gb	.4Gb	.25Gb	.2Gb	LGTH
SIP			26.00		42.00	525
FCP	24.50	32.40		46.80		529
GPP (FCS)	14.95	21.92	25.40	35.84	40.50	696
GPP (SIP)			27.05		42.09	578

Relative Comparisons
(512-Byte WRITE)

ITEM	1Gb (uS)	.5Gb	.4Gb	.25Gb	.2Gb	LGTH
FCP:GPP	1.62	1.48		1.36		1.18
FCP:SIP @ 20	0.57	0.77		1.16		1.55
GPP:SIP @ 20	0.33	0.62		0.88	1.00	1.32
FCP:SIP @ 40	0.89	1.18		1.55		1.55
GPP:SIP @ 40	0.52	0.76	0.93	1.22		1.32

Conclusions

- GPP is more than a little faster than FCP on Fibre Channel - 36%, 48% and 62% @ 25, 50, and 100 MB/s, respectively

- GPP is a little faster than SIP - 0% and 7% @ 20 and 40 MB/S, respectively

- If the name of the game is PERFORMANCE you must change data transfer paradigms

SIP Interactions
(512-Byte WRITE)
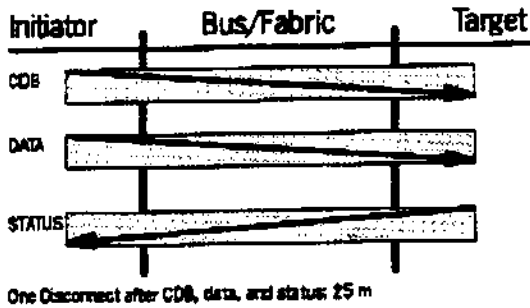
Initiator   Bus/Fabric   Target

CDB

DATA

STATUS

One Disconnect after CDB, data, and status 25 m

SIP Overhead
(512-Byte WRITE)

- Command transfer requires
  - Connection
  - Identification
  - CDB Transfer
  - Disconnection

- Data transfer requires
  - Reconnection
  - Identification
  - Data Transfer
  - Disconnection

- Status transfer requires
  - Reconnection
  - Identification
  - Status Transfer
  - Disconnection

- Total Bytes Transferred - 528
  - IT + IDENTIFY x 3 = 6
  - DISCONNECT x 3 = 3
  - CDB = 6
  - DATA = 512
  - STATUS = 1

Overhead Comparisons
(512-Byte WRITE)

- SIP - 528 Bytes (3.1%)

- FCP - 820 Bytes (60.1%)

- GPP - 696 Bytes (35.9%)

SIP Translated to Time
(512-Byte WRITE)

ITEM	1Gb (uS)	.5Gb	.4Gb	.25Gb	.3Gb	LGTH
CDB			8.00		8.00	8
DATA			21.00		34.00	515
STATUS			8.00		8.00	4
Total			37.00		50.00	528

Bus Length = 25 m

Time Comparisons
(512-Byte WRITE)

ITEM	1Gb (uS)	.5Gb	.4Gb	.25Gb	.2Gb	LGTH
SIP			37.00		50.00	528
FCP	24.20	32.40		48.40		820
GPP (FCS)	14.98	21.92	25.40	36.54	40.50	696
GPP (SIP)			27.05		42.08	579

Relative Comparisons
(512-Byte WRITE)

ITEM	1Gb (uS)	.5Gb	.4Gb	.25Gb	.2Gb	LGTH
FCP:GPP	1.62	1.48		1.35		1.18
FCP:SIP @ 20	0.48	0.54		0.96		1.55
GPP:SIP @ 20	0.30	0.44		0.72	0.84	1.32
FCP:SIP @ 40	0.65	0.88		1.32		1.55
GPP:SIP @ 40	0.40	0.59	0.73	0.97		1.32

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Conclusions

- GPP is more than a little faster than FCP on Fibre Channel - 36%, 48% and 62% @ 25, 50, and 100 MB/s, respectively

- GPP is more than a little faster than SIP - 19% and 37% @ 20 and 40 MB/S, respectively

- If the name of the game is PERFORMANCE you must change data transfer paradigms