◉ Madison Cable Corporation

September 11, 1990

TO: John Lohmeyer, Chairman X3T9.2

FROM: Robert A. Bellino,

Subject: IPI/HPPI/SCSI-2 Color Code

Hi John,

The following is some background information on how the color code was established for our 4099 SCSI-2 cable and also serves as a backup to Chuck Grant's letter to you of September 10th.

A few years ago we shipped samples of Madison's 50 pair IPI cable to several ANSI X3T9.3 committee members for their in-house evaluation.

In evaluating the test data it was noted that the pairs containing red or black conductors had marginally inferior electrical properties.

Some brilliant member of the committee (I don't remember who) explained that the additives used in the color concentrates to insure vivid colors for the black and red conductors could skew the pair to pair propagation delay delta by as much as 2%.

In order to take full advantage of anything that could possibly effect lowering the skew of multi pair cables the IPI committee unanimously accepted the color code recommended by Madison. The new IPI color code substituted the colors tan and pink for black and red. All of our 50 pair IPI cables utilize this color code since all of our customers have accepted this new code.

ANSI's HPPI committee was next to adopt this color code in their standard.

Attached is page 45 of the HPPI standard.

As mentioned in Chuck Grant's memo, this color code has been widely accepted by the majority of our computer customers and written into their 24 and 34 pair SCSI-2 specifications as well as their HPPI and IPI specifications.

As an example attached is page 8 of Sun Micro's IPI spec (950-1520-01 Rev. B) specifying ANSI's X3T9.3 color code system for their IPI cables.

Sun Micro's SCSI-2 spec 950-1566-01 specifies the first 25 pair colors of this new color code standard for their SCSI-2 cable. Attached is page 7 of their specification.

Since it is generally recognized that Madison is the undisputed industry leader for IPI, HPPI and SCSI-2 cables our customers were quick to accept this new color code system once they were advised of the reasoning and the background history behind it.

Sincerely,

Robert A. Bellino
Senior Vice President
Technical Director

RAB/sd
cc: H. Cotton
     R. Bretholtz
     M. Patel
     L. Lamers, Chairman X3T9.2 Cable Working Group

The Sun spec. pages are not included in the committee mailing since they are marked proprietary.

John

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HIGH-PERFORMANCE PARALLEL INTERFACE
Mechanical, Electrical, and Signalling Protocol Specification

(HPPI-PH)

preliminary draft proposed
American National Standard
for information systems

February 27, 1990

Secretariat:

Computer & Business Equipment Manufacturers Association

ABSTRACT: The described High-Performance Parallel Interface (HPPI-PH) is intended as the physical layer of an efficient simplex high-performance point-to-point interface for transmitting digital data at peak data rates of 800 or 1600 Mbit/s between data-processing equipment using multiple twisted-pair copper cabling at distances up to 25 m.

NOTE:

This document is an internal working document of X3T9, a Technical Committee of Accredited Standards Committee X3. As such, this is not a completed standard, but is considered to be technically complete by the X3T9.3 Task Group. The contents of this document may be modified as a result of comments received during the review process. For current information on the status of this document contact the individuals shown below:

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Table E.1 - Connector wire assignments

Pair #	Pin+		Pin-	
	Pin	Color	Pin	Color
1	1	White/Tan	2	Tan/White
2	3	White/Brown	4	Brown/White
3	5	White/Pink	6	Pink/White
4	7	White/Orange	8	Orange/White
5	9	White/Yellow	10	Yellow/White
6	11	White/Green	12	Green/White
7	13	White/Blue	14	Blue/White
8	15	White/Violet	16	Violet/White
9	17	White/Gray	18	Gray/White
10	19	Tan/Brown	20	Brown/Tan
11	21	Tan/Pink	22	Pink/Tan
12	23	Tan/Orange	24	Orange/Tan
13	25	Tan/Yellow	26	Yellow/Tan
14	27	Tan/Green	28	Green/Tan
15	29	Tan/Blue	30	Blue/Tan
16	31	Tan/Violet	32	Violet/Tan
17	33	Tan/Gray	34	Gray/Tan
18	35	Brown/Pink	36	Pink/Brown
19	37	Brown/Orange	38	Orange/Brown
20	39	Brown/Yellow	40	Yellow/Brown
21	41	Brown/Green	42	Green/Brown
22	43	Brown/Blue	44	Blue/Brown
23	45	Brown/Violet	46	Violet/Brown
24	47	Brown/Gray	48	Gray/Brown
25	49	Pink/Orange	50	Orange/Pink
26	51	Pink/Yellow	52	Yellow/Pink
27	53	Pink/Green	54	Green/Pink
28	55	Pink/Blue	56	Blue/Pink
29	57	Pink/Violet	58	Violet/Pink
30	59	Pink/Gray	60	Gray/Pink
31	61	Orange/Yellow	62	Yellow/Orange
32	63	Orange/Green	64	Green/Orange
33	65	Orange/Blue	66	Blue/Orange
34	67	Orange/Violet	68	Violet/Orange
35	69	Orange/Gray	70	Gray/Orange
36	71	Yellow/Green	72	Green/Yellow
37	73	Yellow/Blue	74	Blue/Yellow
38	75	Yellow/Violet	76	Violet/Yellow
39	77	Yellow/Gray	78	Gray/Yellow
40	79	Green/Blue	80	Blue/Green
41	81	Green/Violet	82	Violet/Green
42	83	Green/Gray	84	Gray/Green
43	85	Blue/Violet	86	Violet/Blue
44	87	Blue/Gray	88	Gray/Blue
45	89	Violet/Gray	90	Gray/Violet
46	91	White	92	Tan
47	93	Gray	94	Brown
48	95	Blue	96	Pink
49	97	Violet	98	Orange
50	99	Green	100	Yellow