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DATE: 7, SEP, 1990  
TO: MR. JOHN LOHMEYER, CHAIR-PERSON X3T9.2  
FROM: TERRY MAEZAWA, FURUKAWA ELECTRIC AMERICA  
SUBJECT: PROPOSAL FOR COLOR CODING OF SCSI-2 CABLES

X3T9.2/90-142

After long consideration I would like to propose the following alternatives for COLOR CODING OF SCSI-2 CABLES.

PROPOSAL:

The COLOR CODING OF SCSI-2 CABLES should consist of pair color coding as defined in the following tables, 111-142.

REASON:

1. The COLOR CODING METHOD should also be in accordance with the international standards. The predominant color coding method currently in use around the world is the IEC Standards. This color coding method was established in 1976 (Publication No. 304). Also, this color coding system has been referred for another cable standard (Publication No. 708).

IEC: INTERNATIONAL ELECTRONICAL COMMISSION

2. During the termination/connecterization process, the first step of this work is to find the appropriate pair. Then separate the two wires for the appropriate pins.

This process is very important because the first step is not to locate the individual wires, but to locate and identify the twisted pair.

Of course, if the wires are marked individually, it is more convenient, but also more expensive. The industry will lose potential future cost reductions by implementing the discrete, individually marked color code system. Please see Table 2.

TABLE 2 COMPARISON FOR COLOR CODING SYSTEMS

	PAIR IDENTIFY & SEMI AUTO. ASSY MACHINE	PAIR IDENTIFY & MANUAL ASSY	INDIVIDUAL WIRE IDENTIFY & MANUAL ASSY
PAIR IDENTIFY	YES	YES	YES
WIRE IDENTIFY	YES (AFTER PAIR IDENTIFY)	YES (AFTER PAIR IDENTIFY)	YES
CONNECTERIZATION	BASICALLY DO NOT NEED THE ABOVE IDENTIFICATION	PAIR IDENTIFICATION IS REQUIRED	PAIR IDENTIFICATION IS REQUIRED
INITIAL COST	ACCURATE 100% NECESSARY	DEPEND ON SKILLS	DEPEND ON SKILLS
ROUTING COST (DAILY COST)	ONLY MECHANICAL CARE	HAVE TO KEEP HIGH LEVEL SKILLS BY DAILY TRAINING	HAVE TO KEEP HIGH LEVEL OF SKILLS BY DAILY TRAINING
CABLE COST	LOW	LOW	HIGH
TOTAL EVALUATION	ONLY COLOR INSULATION EVENTUALLY NOT NEED RECOMMEND	ONLY COLOR INSULATION ALTERNATIVE	COLOR INSULATION & ADDITIONAL WORK OR MATERIAL IS REQUIRED WATERBAM

TABLE 111 COLOR CODING SYSTEM

SCSI-2 SHIELDED MULTI-PAIR COLOR CODE STANDARD FOR ROUND CABLE  
9/7/90

A" CABLE 8 - BIT SINGLE-ENDED CONTACT ASSIGNMENT

PAIR NBR.	WIRE 1 COLOR	PIN #	SIGNAL NAME 1	WIRE 2 COLOR	PIN #	SIGNAL NAME 2
13	BLACK	1	GROUND	GREEN	26	-DB(0)
14	BLACK	2	GROUND	BROWN	27	-DB(1)
15	BLACK	3	GROUND	GREY	28	-DB(2)
16	YELLOW	4	GROUND	BLUE	29	-DB(3)
17	YELLOW	5	GROUND	ORANGE	30	-DB(4)
18	YELLOW	6	GROUND	GREEN	31	-DB(5)
19	YELLOW	7	GROUND	BROWN	32	-DB(6)
20	YELLOW	8	GROUND	GREY	33	-DB(7)
21	VIOLET	9	GROUND	BLUE	34	-DB(P)
22	VIOLET	10	GROUND	ORANGE	35	GROUND
23	VIOLET	11	GROUND	GREEN	36	GROUND
24	VIOLET	12	RESERVED	BROWN	37	RESERVED
25	VIOLET	13	OPEN	GREY	38	TERMPWR
11	BLACK	14	RESERVED	BLUE	39	RESERVED
12	BLACK	15	GROUND	ORANGE	40	GROUND
3	WHITE	16	GROUND	GREEN	41	-ATN
4	WHITE	17	GROUND	BROWN	42	GROUND
5	WHITE	18	GROUND	GREY	43	-BSY
2	WHITE	19	GROUND	ORANGE	44	-ACK
6	RED	20	GROUND	BLUE	45	-RST
7	RED	21	GROUND	ORANGE	46	-MSG
8	RED	22	GROUND	GREEN	47	-SEL
9	RED	23	GROUND	BROWN	48	-C/D
1	WHITE	24	GROUND	BLUE	49	-REQ
10	RED	25	GROUND	GREY	50	-I/O

SORTED BY PIN NUMBER

LAYUP: 2/PR + 0/PR + 15/PR

TABLE 112 COLOR CODING SYSTEM

SCSI-2 SHIELDED MULTI-PAIR COLOR CODE STANDARD FOR ROUND CABLE  
9/7/90

8" CABLE - 8 BIT SINGLE-ENDED CONTACT ASSIGNMENT

PAIR NBR.	WIRE 1 COLOR	PIN #	SIGNAL NAME 1	WIRE 2 COLOR	PIN #	SIGNAL NAME 2
1	WHITE	24	GROUND	BLUE	49	-REQ
2	WHITE	19	GROUND	ORANGE	44	-ACK
3	WHITE	16	GROUND	GREEN	41	--ATN
4	WHITE	17	GROUND	BROWN	42	GROUND
5	WHITE	18	GROUND	GREY	43	--BSY
6	RED	20	GROUND	BLUE	45	-RST
7	RED	21	GROUND	ORANGE	46	-MSG
8	RED	22	GROUND	GREEN	47	-SEL
9	RED	23	GROUND	BROWN	48	-C/D
10	RED	25	GROUND	GREY	50	-I/O
11	BLACK	14	RESERVED	BLUE	39	RESERVED
12	BLACK	15	GROUND	ORANGE	40	GROUND
13	BLACK	1	GROUND	GREEN	26	-DB(0)
14	BLACK	2	GROUND	BROWN	27	-DB(1)
15	BLACK	3	GROUND	GREY	28	-DB(2)
16	YELLOW	4	GROUND	BLUE	29	-DB(3)
17	YELLOW	5	GROUND	ORANGE	30	-DB(4)
18	YELLOW	6	GROUND	GREEN	31	-DB(5)
19	YELLOW	7	GROUND	BROWN	32	-DB(6)
20	YELLOW	8	GROUND	GREY	33	-DB(7)
21	VIOLET	9	GROUND	BLUE	34	-DB(F)
22	VIOLET	10	GROUND	ORANGE	35	GROUND
23	VIOLET	11	GROUND	GREEN	36	GROUND
24	VIOLET	12	RESERVED	BROWN	37	RESERVED
25	VIOLET	13	OPEN	GREY	38	TERMPWR

SORTED BY PAIR NUMBER

LAYUP: 2/PR + 8/PR + 15/PR

TABLE 121 COLOR CODING SYSTEM

SGSI-2 SHIELDED MULTI-PAIR COLOR CODE STANDARD FOR ROUND CABLE  
9/7/90

8" CABLE - 8 - BIT DIFFERENTIAL CONTACT ASSIGNMENT

PAIR NBR.	WIRE 1 COLOR	PIN #	SIGNAL NAME 1	WIRE 2 COLOR	PIN #	SIGNAL NAME 2
23	VIOLET	1	GROUND	GREEN	26	GROUND
13	BLACK	2	+DB(0)	GREEN	27	-DB(0)
14	BLACK	3	+DB(1)	BROWN	28	-DB(1)
15	BLACK	4	+DB(2)	GREY	29	-DB(2)
16	YELLOW	5	+DB(3)	BLUE	30	-DB(3)
17	YELLOW	6	+DB(4)	ORANGE	31	-DB(4)
18	YELLOW	7	+DB(5)	GREEN	32	-DB(5)
19	YELLOW	8	+DB(6)	BROWN	33	-DB(6)
20	YELLOW	9	+DB(7)	GREY	34	-DB(7)
21	VIOLET	10	+DB(P)	BLUE	35	-DB(P)
22	VIOLET	11	DIFFSENS	ORANGE	36	GROUND
24	VIOLET	12	RESERVED	GREEN	37	RESERVED
25	VIOLET	13	TERMPWR	BROWN	38	TERMPWR
11	BLACK	14	RESERVED	BLUE	39	RESERVED
3	WHITE	15	+ATN	GREEN	40	-ATN
4	WHITE	16	GROUND	BROWN	41	GROUND
5	WHITE	17	+BSY	GREY	42	-BSY
2	WHITE	18	+ACK	ORANGE	43	-ACK
6	RED	19	+RST	BLUE	44	-RST
7	RED	20	+MSG	ORANGE	45	-MSG
8	RED	21	+SEL	GREEN	46	-SEL
9	RED	22	+C/D	BROWN	47	-C/D
1	WHITE	23	+REQ	BLUE	48	-REQ
10	RED	24	+I/O	GREY	49	-I/O
12	BLACK	25	GROUND	ORANGE	50	GROUND

SORTED BY PIN NUMBER

LAYUP: 2/PR + 8/PR + 15/PR

TABLE 122 COLOR CODING SYSTEM

SCSI-2 SHIELDED MULTI-PAIR COLOR CODE STANDARD FOR ROUND CABLE  
9/7/90

8" CABLE - 8 - BIT DIFFERENTIAL CONTACT ASSIGNMENT

PAIR NBR.	WIRE 1 COLOR	PIN #	SIGNAL NAME 1	WIRE 2 COLOR	PIN #	SIGNAL NAME 2
1	WHITE	23	+REQ	BLUE	48	-REQ
2	WHITE	18	+ACK	ORANGE	43	-ACK
3	WHITE	15	+ATN	GREEN	40	-ATN
4	WHITE	16	GROUND	BROWN	41	GROUND
5	WHITE	17	+BSY	GREY	42	-BSY
6	RED	19	+RST	BLUE	44	-RST
7	RED	20	+MSG	ORANGE	45	-MSG
8	RED	21	+SEL	GREEN	46	-SEL
9	RED	22	+C/D	BROWN	47	-C/D
10	RED	24	+I/O	GREY	49	-I/O
11	BLACK	14	RESERVED	BLUE	39	RESERVED
12	BLACK	25	GROUND	ORANGE	50	GROUND
13	BLACK	2	+DB(0)	GREEN	27	-DB(0)
14	BLACK	3	+DB(1)	BROWN	28	-DB(1)
15	BLACK	4	+DB(2)	GREY	29	-DB(2)
16	YELLOW	5	+DB(3)	BLUE	30	-DB(3)
17	YELLOW	6	+DB(4)	ORANGE	31	-DB(4)
18	YELLOW	7	+DB(5)	GREEN	32	-DB(5)
19	YELLOW	8	+DB(6)	BROWN	33	-DB(6)
20	YELLOW	9	+DB(7)	GREY	34	-DB(7)
21	VIOLET	10	+DB(P)	BLUE	35	-DB(P)
22	VIOLET	11	DIFFSENS	ORANGE	36	GROUND
23	VIOLET	1	GROUND	GREEN	26	GROUND
24	VIOLET	12	RESERVED	BROWN	37	RESERVED
25	VIOLET	13	TERMPWR	GREY	38	TERMPWR

SORTED BY PAIR NUMBER

LAYUP: 2/PR + 8/PR + 15/PR

TABLE 131 COLOR CODING SYSTEM

SCSI-2 SHIELDED MULTI-PAIR COLOR CODE STANDARD FOR ROUND CABLE  
9/7/90

F" CABLE - 16 - BIT SINGLE-ENDED CONTACT ASSIGNMENT

PAIR NBR.	WIRE 1 COLOR	PIN #	SIGNAL NAME 1	WIRE 2 COLOR	PIN #	SIGNAL NAME 2
29	PINK	1	GROUND	BROWN	35	-DB(12)
30	PINK	2	GROUND	GREY	36	-DB(13)
31	DARK GREEN	3	GROUND	BLUE	37	-DB(14)
32	DARK GREEN	4	GROUND	ORANGE	38	-DB(15)
16	YELLOW	5	GROUND	BLUE	39	-DB(P1)
17	YELLOW	6	GROUND	ORANGE	40	-DB(0)
18	YELLOW	7	GROUND	GREEN	41	-DB(1)
19	YELLOW	8	GROUND	BROWN	42	-DB(2)
20	YELLOW	9	GROUND	GREY	43	-DB(3)
21	VIOLET	10	GROUND	BLUE	44	-DB(4)
22	VIOLET	11	GROUND	ORANGE	45	-DB(5)
23	VIOLET	12	GROUND	GREEN	46	-DB(6)
24	VIOLET	13	GROUND	BROWN	47	-DB(7)
14	BLACK	14	GROUND	BROWN	48	-DB(P)
12	BLACK	15	GROUND	ORANGE	49	GROUND
13	BLACK	16	GROUND	GREEN	50	GROUND
33	DARK GREEN	17	TERMPWR	GREEN	51	TERMPWR
34	DARK GREEN	18	TERMPWR	BROWN	52	TERMPWR
11	BLACK	19	RESERVED	BLUE	53	RESERVED
15	BLACK	20	GROUND	GREY	54	GROUND
3	WHITE	21	GROUND	GREEN	55	-ATN
8	RED	22	GROUND	GREEN	56	GROUND
5	WHITE	23	GROUND	GREY	57	-BSY
2	WHITE	24	GROUND	ORANGE	58	-ACK
6	RED	25	GROUND	BLUE	59	-RST
7	RED	26	GROUND	ORANGE	60	-MSG
9	RED	27	GROUND	BROWN	61	-SEL
4	WHITE	28	GROUND	BROWN	62	-C/D
1	WHITE	29	GROUND	BLUE	63	-REQ
10	RED	30	GROUND	GREY	64	I/O
25	VIOLET	31	GROUND	GREY	65	-DB(8)
26	PINK	32	GROUND	BLUE	66	-DB(9)
27	PINK	33	GROUND	ORANGE	67	-DB(10)
28	PINK	34	GROUND	GREEN	68	-DB(11)

SORTED BY PIN NUMBER

LAYUP: 5/PR + 11/PR + 13/PR

TABLE 132 COLOR CODING SYSTEM

SCSI-2 SHIELDED MULTI-PAIR COLOR CODE STANDARD FOR ROUND CABLE  
9/7/90

8" CABLE 16 - BIT SINGLE-ENDED CONTACT ASSIGNMENT

PAIR NBR.	WIRE 1 COLOR	PIN #	SIGNAL NAME 1	WIRE 2 COLOR	PIN #	SIGNAL NAME 2
1	WHITE	29	GROUND	BLUE	69	-REQ
2	WHITE	24	GROUND	ORANGE	58	-ACK
3	WHITE	21	GROUND	GREEN	55	--ATN
4	WHITE	28	GROUND	BROWN	62	-C/D
5	WHITE	23	GROUND	GREY	57	-BSY
6	RED	25	GROUND	BLUE	59	-RST
7	RED	26	GROUND	ORANGE	60	--MSG
8	RED	22	GROUND	GREEN	56	GROUND
9	RED	27	GROUND	BROWN	61	-SEL
10	RED	30	GROUND	GREY	64	--I/O
11	BLACK	19	RESERVED	BLUE	53	RESERVED
12	BLACK	15	GROUND	ORANGE	49	GROUND
13	BLACK	16	GROUND	GREEN	50	GROUND
14	BLACK	14	GROUND	BROWN	48	-DB(P)
15	BLACK	20	GROUND	GREY	54	GROUND
16	YELLOW	5	GROUND	BLUE	39	-DB(P1)
17	YELLOW	6	GROUND	ORANGE	40	-DB(0)
18	YELLOW	7	GROUND	GREEN	41	-DB(1)
19	YELLOW	8	GROUND	BROWN	42	-DB(2)
20	YELLOW	9	GROUND	GREY	43	-DB(3)
21	VIOLET	10	GROUND	BLUE	44	-DB(4)
22	VIOLET	11	GROUND	ORANGE	45	-DB(5)
23	VIOLET	12	GROUND	GREEN	46	-DB(6)
24	VIOLET	13	GROUND	BROWN	47	-DB(7)
25	VIOLET	31	GROUND	GREY	65	-DB(8)
26	PINK	32	GROUND	BLUE	66	-DB(9)
27	PINK	33	GROUND	ORANGE	67	-DB(10)
28	PINK	34	GROUND	GREEN	68	-DB(11)
29	PINK	1	GROUND	BROWN	35	-DB(12)
30	PINK	2	GROUND	GREY	36	-DB(13)
31	DARK GREEN	3	GROUND	BLUE	37	-DB(14)
32	DARK GREEN	4	GROUND	ORANGE	38	-DB(15)
33	DARK GREEN	17	TERMPWR	GREEN	51	TERMPWR
34	DARK GREEN	18	TERMPWR	BROWN	52	TERMPWR

SORTED BY PAIR NUMBER

LAYOUT: 5/PR + 11/PR + 18/PR



TABLE 141 COLOR CODING SYSTEM

SCSI-2 SHIELDED MULTI-PAIR COLOR CODE STANDARD FOR ROUND CABLE  
9/7/90

P" CABLE - 16 - BIT DIFFERENTIAL CONTACT ASSIGNMENT

PAIR NBR.	WIRE 1 COLOR	PIN #	SIGNAL NAME 1	WIRE 2 COLOR	PIN #	SIGNAL NAME 2
29	PINK	1	+DB(12)	BROWN	35	-DB(12)
30	PINK	2	+DB(13)	GREY	36	-DB(13)
31	DARK GREEN	3	+DB(14)	BLUE	37	-DB(14)
32	DARK GREEN	4	+DB(15)	ORANGE	38	-DB(15)
16	YELLOW	5	+DB(P1)	BLUE	39	-DB(P1)
12	YELLOW	6	GROUND	ORANGE	40	GROUND
17	YELLOW	7	+DB(0)	GREEN	41	--DB(0)
18	YELLOW	8	+DB(1)	BROWN	42	-DB(1)
19	YELLOW	9	+DB(2)	GREY	43	-DB(2)
20	VIOLET	10	+DB(3)	BLUE	44	-DB(3)
21	VIOLET	11	+DB(4)	ORANGE	45	-DB(4)
22	VIOLET	12	+DB(5)	GREEN	46	-DB(5)
23	VIOLET	13	+DB(6)	BROWN	47	-DB(6)
24	BLACK	14	+DB(7)	BROWN	48	-DB(7)
14	BLACK	15	+DB(F)	ORANGE	49	-DB(F)
13	BLACK	16	DIFFSENS	GREEN	50	GROUND
33	DARK GREEN	17	TERMPWR	GREEN	51	TERMPWR
34	DARK GREEN	18	TERMPWR	BROWN	52	TERMPWR
11	BLACK	19	RESERVED	BLUE	53	RESERVED
3	BLACK	20	+ATN	GREY	54	--ATN
8	WHITE	21	GROUND	GREEN	55	GROUND
5	RED	22	+BSY	GREEN	56	-BSY
2	WHITE	23	+ACK	GREY	57	--ACK
6	WHITE	24	+RST	ORANGE	58	-RST
7	RED	25	+MSG	BLUE	59	-MSG
9	RED	26	+SEL	ORANGE	60	-SEL
4	RED	27	+C/D	BROWN	61	-C/D
1	WHITE	28	+REQ	BROWN	62	-REQ
10	WHITE	29	+I/O	BLUE	63	--I/O
15	RED	30	GROUND	GREY	64	GROUND
25	VIOLET	31	+DB(8)	GREY	65	-DB(8)
26	PINK	32	+DB(9)	BLUE	66	-DB(9)
27	PINK	33	+DB(10)	ORANGE	67	-DB(10)
28	PINK	34	+DB(11)	GREEN	68	-DB(11)

SORTED BY PIN NUMBER

LAYUP: 5/PR + 11/PR + 18/PR

TABLE 142 COLOR CODING SYSTEM

SCSI-2 SHIELDED MULTI-PAIR COLOR CODE STANDARD FOR ROUND CABLE  
9/7/90

P" CABLE - 16 - BIT DIFFERENTIAL CONTACT ASSIGNMENT

PAIR NBR.	WIRE 1 COLOR	PIN #	SIGNAL NAME 1	WIRE 2 COLOR	PIN #	SIGNAL NAME 2
1	WHITE	28	+REQ	BLUE	62	-REQ
2	WHITE	23	+ACK	ORANGE	57	-ACK
3	WHITE	20	+ATN	GREEN	54	-ATN
4	WHITE	27	+C/D	BROWN	61	-C/D
5	WHITE	22	+BSY	GREY	56	-BSY
6	RED	24	+RST	BLUE	58	-RST
7	RED	25	+MSG	ORANGE	59	-MSG
8	RED	21	GROUND	GREEN	55	GROUND
9	RED	26	+SEL	BROWN	60	-SEL
10	RED	29	+I/O	GREY	63	-I/O
11	BLACK	19	RESERVED	BLUE	53	RESERVED
12	BLACK	6	GROUND	ORANGE	40	GROUND
13	BLACK	16	DIFFSENS	GREEN	50	GROUND
14	BLACK	15	+DB(P)	BROWN	49	-DB(P)
15	BLACK	30	GROUND	GREY	64	GROUND
16	YELLOW	5	+DB(P1)	BLUE	39	-DB(P1)
17	YELLOW	7	+DB(0)	ORANGE	41	--DB(0)
18	YELLOW	8	+DB(1)	GREEN	42	--DB(1)
19	YELLOW	9	+DB(2)	BROWN	43	--DB(2)
20	YELLOW	10	+DB(3)	GREY	44	--DB(3)
21	VIOLET	11	+DB(4)	BLUE	45	--DB(4)
22	VIOLET	12	+DB(5)	ORANGE	46	--DB(5)
23	VIOLET	13	+DB(6)	GREEN	47	--DB(6)
24	VIOLET	14	+DB(7)	BROWN	48	--DB(7)
25	VIOLET	31	+DB(8)	GREY	65	--DB(8)
26	PINK	32	+DB(9)	BLUE	66	--DB(9)
27	PINK	33	+DB(10)	ORANGE	67	--DB(10)
28	PINK	34	+DB(11)	GREEN	68	--DB(11)
29	PINK	1	+DB(12)	BROWN	35	--DB(12)
30	PINK	2	+DB(13)	GREY	36	--DB(13)
31	DARK GREEN	3	+DB(14)	BLUE	37	--DB(14)
32	DARK GREEN	4	+DB(15)	ORANGE	38	--DB(15)
33	DARK GREEN	17	TERMPWR	GREEN	51	TERMPWR
34	DARK GREEN	18	TERMPWR	BROWN	52	TERMPWR

SORTED BY PAIR NUMBER

LAYUP: 5/PR + 11/PR + 18/PR