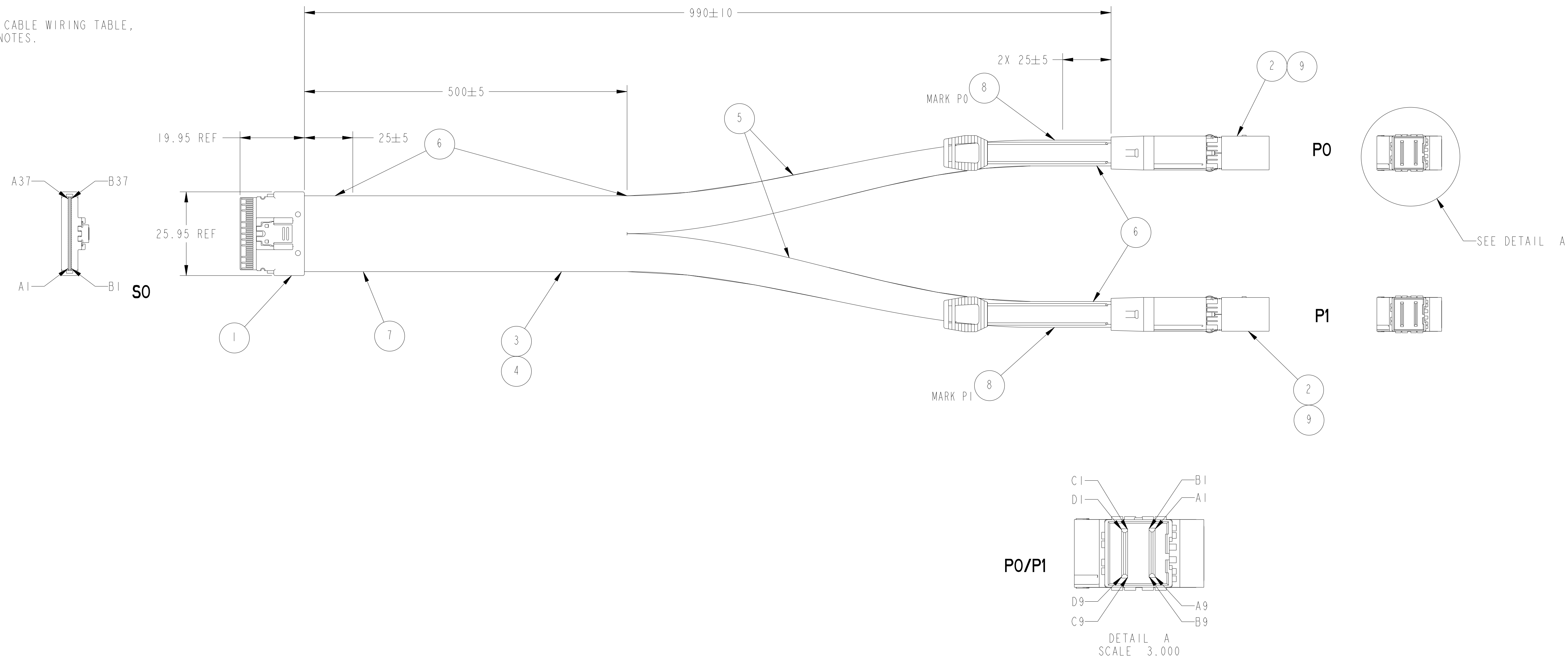


NOTES:

- DRAWING NOT TO SCALE.
- ELECTRICAL AND MECHANICAL PERFORMANCE SHALL MEET SAS 4.0 AND PCIE GEN 4 INDUSTRIAL STANDARDS.
- MARK LABEL (ITEM 7) WITH:
 TEST CABLE - INTERNAL TO EXTERNAL NVME
 BROADCOM PART NUMBER
 BROADCOM REVISION XXX
 DATE CODE DD/MM/YY

 SECONDARY MARKING WITH MANUFACTURER PART NUMBER AND REVISION ACCEPTABLE.
- SEE ADDITIONAL SHEETS FOR CABLE WIRING TABLE, EEPROM DATA, AND RELATED NOTES.

REVISIONS				
REV	ECO	DESCRIPTION	DATE	APPROVED
001		INITIAL RELEASE	10FEB2020	B.L.LIMA



ITEM	CALLOUT	DESCRIPTION	QUANTITY	NOTES
9	EEPROM		2	SEE NOTE 4
8	LABEL	LABEL, 40X14MM, WHITE, R2, HF	A/R	
7	LABEL	LABEL, 70X26MM, WHITE, R2, HF	A/R	SEE NOTE 3
6	TAPE	ACETATE TAPE: W=1 INCH	A/R	
5	SLEEVING	EXPANDO TUBE: OD=7MM, BLACK, VW-1, HF	A/R	
4	SLEEVING	EXPANDO TUBE: OD=10MM, PINK, VW-1, HF	A/R	
3	CABLE	SAS CABLE: UL20744, 92.5Ω ±10% DIFF, 28-32AWG, SAS 4.0, PCIE GEN 4, VW-1, NATURAL, HF	A/R	
2	CONNECTOR	SFF-8644, 36P, STRAIGHT, X4, MINISAS HD, SAS 4.0, PCIE GEN 4, PULLTAB PANTONE 354U GREEN	2	SEE NOTE 4
1	CONNECTOR	SFF-8654, 74P, STRAIGHT, X8, SAS 4.0, PCIE GEN 4	1	SEE NOTE 4

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APPROVALS		DATE	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS. TOLERANCES: X.X ± 0.2 MM X.XX ± 0.15 MM X.XXX ± 0.050 MM ANGLES ± 1°	BROADCOM®						
DRAWN BY	D. MONTGOMERY	03FEB20		TITLE	CABLE, X8 SFF-8654 TO 2X SFF-8644 X4, NO SIDEBANDS, 1M					
APPROVED BY	B. LIMA	10FEB20		SCALE	1.500	SIZE	D			
Company Confidential © Copyright Broadcom Limited All Rights Reserved. Any copy is an uncontrolled copy. The possessor is responsible for verifying that the document's revision is current. Moreover, the possessor is responsible for removing obsolete documents from their point of use.			SCALE	1.500	DWG NO.	5067-8630	REV	001	SHEET	1 OF 4

CONNECTOR SIGNAL	CONNECTOR	PIN/PAD	CONNECTOR	PIN/PAD	CONNECTOR SIGNAL	WIRE/CABLE	NOTES
GND	S0	A1	P0	C3	GND	ITEM 3	
Rx0+		A2		C4	Tx0+	ITEM 3	
Rx0-		A3		C5	Tx0-	ITEM 3	
GND		A4		C6	GND	ITEM 3	NOTE 1, NOTE 2
GND		A4		D3	GND	ITEM 3	NOTE 1
Rx1+		A5		D4	Tx1+	ITEM 3	
Rx1-		A6		D5	Tx1-	ITEM 3	
GND		A7		D6	GND	ITEM 3	NOTE 2
SB7A		A8			NC	SHORT TO S0-B9	
SB4A		A9			NC		
SB3A		A10			GND	GND S0 END	
SBA+		A11			NC		
SBA-		A12			NC		
GND		A13		D6	GND	ITEM 3	NOTE 2
Rx2+		A14		D7	Tx2+	ITEM 3	
Rx2-		A15		D8	Tx2-	ITEM 3	
GND		A16		D9	GND	ITEM 3	NOTE 1
GND		A16		C6	GND	ITEM 3	NOTE 1, NOTE 2
Rx3+		A17		C7	Tx3+	ITEM 3	
Rx3-	A18	C8	Tx3-	ITEM 3			
GND	A19	C9	GND	ITEM 3	NOTE 1		
GND	B1	A3	GND	ITEM 3			
Tx0+	B2	A4	Rx0+	ITEM 3			
Tx0-	B3	A5	Rx0-	ITEM 3			
GND	B4	A6	GND	ITEM 3	NOTE 1, NOTE 2		
GND	B4	B3	GND	ITEM 3	NOTE 1		
Tx1+	B5	B4	Rx1+	ITEM 3			
Tx1-	B6	B5	Rx1-	ITEM 3			
GND	B7	B6	GND	ITEM 3	NOTE 2		
SB0A	B8		NC				
SB1A	B9		NC				
SB2A	B10		GND	GND S0 END			
SB5A	B11		NC				
SB6A	B12		GND	GND S0 END			
GND	B13	B6	GND	ITEM 3	NOTE 2		
Tx2+	B14	B7	RX2+	ITEM 3			
Tx2-	B15	B8	Rx2-	ITEM 3			
GND	B16	B9	GND	ITEM 3	NOTE 1		
GND	B16	A6	GND	ITEM 3	NOTE 1, NOTE 2		
Tx3+	B17	A7	Rx3+	ITEM 3			
Tx3-	B18	A8	Rx3-	ITEM 3			
GND	B19	A9	GND	ITEM 3	NOTE 1		

P0 EEPROM		PIN/PAD	FUNCTION	DESCRIPTION
	A1	CADDR	EEPROM0 Address pin	
	A2	NC	No Connect	
	B1	NC	No Connect	
	B2	CPRES#	Ground (InPlace#)	
	C1	CMICLK	EEPROM0 SCL	
	C2	CMIDAT	EEPROM0 SDA	
	D1	NC	No Connect	
	D2	NC	No Connect	

CONNECTOR SIGNAL	CONNECTOR	PIN/PAD	CONNECTOR	PIN/PAD	CONNECTOR SIGNAL	WIRE/CABLE	NOTES
GND	S0	A19	P1	C3	GND	ITEM 3	NOTE 1
Rx4+		A20		C4	Tx0+	ITEM 3	
Rx4-		A21		C5	Tx0-	ITEM 3	
GND		A22		C6	GND	ITEM 3	NOTE 1, NOTE 2
GND		A22		D3	GND	ITEM 3	NOTE 1
Rx5+		A23		D4	Tx1+	ITEM 3	
Rx5-		A24		D5	Tx1-	ITEM 3	
GND		A25		D6	GND	ITEM 3	NOTE 2
SB7B		A26			NC	SHORT TO S0-B27	
SB4B		A27			NC		
SB3B		A28			GND	GND S0 END	
SBB+		A29			NC		
SBB-		A30			NC		
GND		A31		D6	GND	ITEM 3	NOTE 2
Rx6+		A32		D7	Tx2+	ITEM 3	
Rx6-		A33		D8	Tx2-	ITEM 3	
GND		A34		D9	GND	ITEM 3	NOTE 1
GND		A34		C6	GND	ITEM 3	NOTE 1, NOTE 2
Rx7+		A35		C7	Tx3+	ITEM 3	
Rx7-	A36	C8	Tx3-	ITEM 3			
GND	A37	C9	GND	ITEM 3			
GND	B19	A3	GND	ITEM 3	NOTE 1		
Tx4+	B20	A4	Rx0+	ITEM 3			
Tx4-	B21	A5	Rx0-	ITEM 3			
GND	B22	A6	GND	ITEM 3	NOTE 1, NOTE 2		
GND	B22	B3	GND	ITEM 3	NOTE 1		
Tx5+	B23	B4	Rx1+	ITEM 3			
Tx5-	B24	B5	Rx1-	ITEM 3			
GND	B25	B6	GND	ITEM 3	NOTE 2		
SB0B	B26		NC				
SB1B	B27		NC				
SB2B	B28		GND	GND S0 END			
SB5B	B29		NC				
SB6B	B30		GND	GND S0 END			
GND	B31	B6	GND	ITEM 3	NOTE 2		
Tx6+	B32	B7	RX2+	ITEM 3			
Tx6-	B33	B8	Rx2-	ITEM 3			
GND	B34	B9	GND	ITEM 3	NOTE 1		
GND	B34	A6	GND	ITEM 3	NOTE 1, NOTE 2		
Tx7+	B35	A7	Rx3+	ITEM 3			
Tx7-	B36	A8	Rx3-	ITEM 3			
GND	B37	A9	GND	ITEM 3			

P1 EEPROM		PIN/PAD	FUNCTION	DESCRIPTION
	A1	CADDR	EEPROM1 Address pin	
	A2	NC	No Connect	
	B1	NC	No Connect	
	B2	CPRES#	Ground (InPlace#)	
	C1	CMICLK	EEPROM1 SCL	
	C2	CMIDAT	EEPROM1 SDA	
	D1	NC	No Connect	
	D2	NC	No Connect	

NOTES:

1. SHARED PIN/PAD ON CONNECTOR S0 END.
2. SHARED PIN/PAD ON CONNECTOR P0/P1 END.

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MILLIMETERS.
TOLERANCES:
X.X ± 0.2 MM
X.XX ± 0.15 MM
X.XXX ± 0.050 MM
ANGLES ± 1°

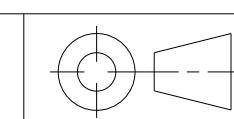


TITLE
CABLE, X8 SFF-8654 TO 2X
SFF-8644 X4, NO SIDEBANDS, 1M

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EEPROM DATA						
BYTE	SFF-8636 CONTENT	SFF-8636	EXTERNAL CABLE	VALUES	R/W	NOTES
0	IDENTIFIER	CABLE IDENTIFIER	CABLE IDENTIFIER	0Fh	RO	x4 WIDTH
1	STATUS	REVISION	RESERVED	08h	RO	REV 2.8 & 2.9 OF 8636 SPEC
2		STATUS INDICATORS	STATUS INDICATORS	04h	RO	STATUS REMAINS UNCHANGED
3	INTERRUPT FLAGS	INTERRUPT FLAGS-LOS	INTERRUPT FLAGS-LOS	00h	RO	NOT SUPPORTED
4		LANE SPECIFIC INTERRUPTS	RESERVED	00h	RO	NOT SUPPORTED
5		LANE SPECIFIC INTERRUPTS		00h	RO	NOT SUPPORTED
6		INTERRUPT FLAGS-TEMP ALARM	INTERRUPT FLAGS-TEMP ALARM	00h	RO	NOT SUPPORTED
7		INTERRUPT FLAGS-VOLTAGE ALARM	INTERRUPT FLAGS-VOLTAGE ALARM	00h	RO	NOT SUPPORTED
8		VENDOR DEFINED ALARM	RESERVED	00h	RO	NOT SUPPORTED
9-10		INPUT POWER ALARMS		00h	RO	NOT SUPPORTED
11-12		TX BIAS ALARMS		00h	RO	NOT SUPPORTED
13-14		TX OUTPUT POWER ALARMS		00h	RO	NOT SUPPORTED
15-16		RESERVED FOR LANE SPECIFIC MONITORING, SET 4		00h	RO	NOT SUPPORTED
17-18	RESERVED FOR LANE SPECIFIC MONITORING, SET 5		00h	RO	NOT SUPPORTED	
19-20	VENDOR SPECIFIC		00h	RO	NOT SUPPORTED	
21	VENDOR SPECIFIC		00h	RO	NOT SUPPORTED	
22-23	MODULE LEVEL MONITORS	MODULE MONITORS-TEMPERATURE	MODULE MONITORS-TEMPERATURE	00h	RO	NOT SUPPORTED
24-25		RESERVED	RESERVED	00h	RO	NOT SUPPORTED
26-27		MODULE MONITORS-SUPPLY VOLTAGE	MODULE MONITORS-SUPPLY VOLTAGE	00h	RO	NOT SUPPORTED
28-29		RESERVED	RESERVED	00h	RO	NOT SUPPORTED
30-33	VENDOR SPECIFIC		00h	RO	NOT SUPPORTED	
34-41	LANE-SPECIFIC MONITORS	RX1-4 INPUT POWER		00h	RO	NOT SUPPORTED
42-49		RX1-4 BIAS		00h	RO	NOT SUPPORTED
50-57		TX OUTPUT POWER		00h	RO	NOT SUPPORTED
85-86		RESERVED LANE-SPECIFIC SET 4		00h	RO	NOT SUPPORTED
66-73		RESERVED LANE-SPECIFIC SET 5		00h	RO	NOT SUPPORTED
74-81	VENDOR SPECIFIC		00h	RO	NOT SUPPORTED	
82-85	RESERVED	RESERVED		00h	RO	
86	CONTROL	RESERVED FOR CONTROL BYTES		00h	RO	
87		RX RATE SELECT CONTROL		00h	RO	NOT SUPPORTED
88		TX RATE SELECT CONTROL		00h	RO	NOT SUPPORTED
89-92		RESERVED		00h	RO	
93		POWER CONTROL		00h	RO	NOT SUPPORTED
94-97		RESERVED		00h	RO	
98		TX/RX CDR CONTROL		00h	RO	NOT SUPPORTED
99		RESERVED	STATE MACHINE CONTROL ENABLE		00h	RO
100	LANE-SPECIFIC INDICATOR INTERRUPT MASKS	RESERVED FOR LANE-SPECIFIC MASKS		00h	RO	
101		TX INPUT FAULT MASK		00h	RO	NOT SUPPORTED
102		RESERVED FOR LANE-SPECIFIC MASKS		00h	RO	
103	MODULE LEVEL INTERRUPT MASKS	MODULE STATE CHANGED FLAG MASK		00h	RO	NOT SUPPORTED
104		DATA PATH STATE CHANGED FLAG MASK		00h	RO	NOT SUPPORTED
105-106	RESERVED FOR MODULE LEVEL MASKS		00h	RO	NOT SUPPORTED	
107	MODULE PROPERTIES	MODULE PROPERTIES		00h	RO	NOT SUPPORTED
108-109		PROPAGATION DELAY	PROPAGATION DELAY	<CABLE PROPERTY PER SAS USAGE (SFF-8636)>	RO	MULTIPLES OF 10ns
110		ADVANCED LOW POWER MODE	RESERVED	00h	RO	<=1.5W, NO FAR SIDE MANAGEMENT, 3.3V
111	PCI EXPRESS USE	CABLED PCI EXPRESS CAPABILITIES 1	CABLED PCI EXPRESS CAPABILITIES 1	0Fh	RO	CAPABLE UP TO 16Gb/s
112		CABLED PCI EXPRESS CAPABILITIES 2	CABLED PCI EXPRESS CAPABILITIES 2	02h	RO	x4 WIDE (NOT BUNDLED, SUB-CABLE ID 0)
113	MODULE PROPERTIES	IMPLEMENTATION	RESERVED	10h	RO	x4 ON BOTH ENDS
114		DATAPATHDEINIT_MAXDURATION		00h	RO	MAX STATE DURATION <1ms
115		MODSELL WAIT TIME		00h	RO	NOT SUPPORTED
116	SECONDARY EXTENDED SPEC COMPLIANCE CODE	SECONDARY EXTENDED SPEC COMPLIANCE CODE		00h	RO	NOT SUPPORTED
117-118	RESERVED	RESERVED		00h	RO	UNSUPPORTED
119-122	PASSWORD CHANGE ENTRY	PASSWORD CHANGE	PASSWORD CHANGE	00h	RO	UNSUPPORTED
123-126	PASSWORD ENTRY AREA	PASSWORD ENTRY	PASSWORD ENTRY	00h	RO	UNSUPPORTED
127	PAGE SELECT BYTE	PAGE SELECT	PAGE SELECT	00h	RO	ONLY PAGE 0 SUPPORTED

NOTES:

- VALUES IN **<BOLD>** SHALL BE SUPPLIED BY MANUFACTURER.
- DEVICE ADDRESS: CONFIGURABLE VIA CADDR, A0h FOR CADDR = 0, A2h FOR CADDR = 1

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MILLIMETERS.
TOLERANCES:
X.X ± 0.2 MM
X.XX ± 0.15 MM
X.XXX ± 0.050 MM
ANGLES ± 1°

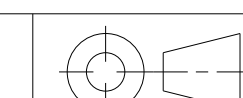


TITLE
CABLE, X8 SFF-8654 TO 2X
SFF-8644 X4, NO SIDEBANDS, 1M

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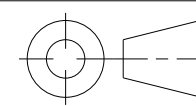
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EEPROM DATA UPPER PAGE (0x00)						
BYTE	SFF-8636 CONTENT	SFF-8636	EXTERNAL CABLE	VALUES	R/W	NOTES
128	IDENTIFIER	CABLE IDENTIFIER	CABLE IDENTIFIER	0Fh	RO	MUST MATCH BYTE 0
129	BASE ID FIELDS	EXTENDED IDENTIFIER	RESERVED	00h	RO	POWER CLASS 1.5W / POWER CLASS UNSPECIFIED
130		CONNECTOR TYPE		00h	RO	UNSPECIFIED
131		SPECIFICATION COMPLIANCE		00h	RO	OCULINK DIFFERENT USE, NON-CONFLICTING
132-138		SPECIFICATION COMPLIANCE		00h	RO	NOT SUPPORTED
133		SAS/SATA COMPLIANCE		F0h	RO	SAS USAGE
134-138		SPECIFICATION COMPLIANCE		00h	RO	NOT SUPPORTED
139		ENCODING		00h	RO	NOT SUPPORTED
140		NOMINAL BIT RATE		5Ah	RO	22.5Gb/s
141		EXTENDED RATE SELECT COMPLIANCE		00h	RO	NOT SUPPORTED
142		LENGTH (SMF)		00h	RO	SINGLE CABLE
143		LENGTH (OM3 50µM)		00h	RO	SINGLE CABLE
144		LENGTH (OM2 50µM)		00h	RO	SINGLE CABLE
145		COPPER CABLE ATTEN OR LENGTH (OM1 62.5µM)		<CABLE ATTENUATION * 25.78GHz IN UNITS OF 1dB>	RO	CABLE/VENDOR DEPENDENT
146		LENGTH (PASSIVE/ACTIVE COPPER OR OM4 50µM)		<CABLE LENGTH IN UNITS OF 1 METER>	RO	UNITS OF 1 METER
147		DEVICE TECHNOLOGY	CABLE TECHNOLOGY	A0h	RO	UNEQUALIZED COPPER
148-163		VENDOR NAME	VENDOR NAME	42h52h4fh41h44h43h4fh4dh20h20h20h20h20h20h20h20h20h20	RO	"BROADCOM "
164		EXTENDED MODULE CODES	RESERVED	00h	RO	INFINBAND USAGE
165-166		VENDOR OUI	PCI-SIG VENDOR ID	14E4h	RO	PCI-SIG VENDOR ID FOR BROADCOM
167	VENDOR OUI	RESERVED	00h	RO	NOT SUPPORTED - USES PCI-SIG ID	
168-183	VENDOR PART NUMBER	VENDOR PART NUMBER	<BROADCOM PART NUMBER FOR CABLE>	RO		
184-185	VENDOR REVISION	VENDOR REVISION	30h31h	RO	REV 01	
186	ATTENUATION 2.5GHz	ATTENUATION 1.25GHz	<CABLE ATTENUATION AT 2.5GHz>	RO	USE SAS FIELD USAGE	
187	ATTENUATION 5.0GHz	ATTENUATION 2.5GHz	<CABLE ATTENUATION AT 5.0GHz>	RO	USE SAS FIELD USAGE	
188	ATTENUATION 7.0GHz	ATTENUATION 4.0GHz	<CABLE ATTENUATION AT 7.0GHz>	RO	USE SAS FIELD USAGE	
189	ATTENUATION 12.9GHz	ATTENUATION 8.0GHz	<CABLE ATTENUATION AT 12.9GHz>	RO	USE SAS FIELD USAGE	
190	MAXIMUM CASE TEMP	MAX CASE TEMP	00h	RO	NOT SUPPORTED / 70C	
191	BASE ID CHECK CODE	CHECKSUM - BASE	CHECKSUM BASE	<BYTES 128-190 CHECKSUM>	RO	
192	EXTENDED ID	EXTENDED SPECIFICATION COMPLIANCE CODES	RESERVED	00h	RO	NOT SUPPORTED
193		TX INPUT EQ CONTROL IMPL		00h	RO	NOT SUPPORTED
194		OPTIONS		00h	RO	NOT SUPPORTED
195		RATE SELECT IMPLEMENTED	OPTIONS	00h	RO	NOT SUPPORTED
196-211		VENDOR SERIAL NUMBER	VENDOR SERIAL NUMBER	<ASCII SERIAL NUMBER>	RO	LEFT ALIGNED
212-217		VENDOR DATE CODE	VENDOR DATE CODE	<ASCII YYMMDD>	RO	
218-219			VENDOR LOT CODE	<VENDOR LOT CODE>	RO	
220		DIAGNOSTIC MONITORING TYPE	RESERVED	00h	RO	NOT SUPPORTED
221	ENHANCED OPTIONS		00h	RO	NOT SUPPORTED	
222	EXTENDED BIT RATE		00h	RO	NOT SUPPORTED	
223	EXTENDED ID CHECK CODE	CHECKSUM - EXTENDED	CHECKSUM EXTENDED	<BYTES 192-222 CHECKSUM>	RO	
224-255	VENDOR SPECIFIC ID	VENDOR SPECIFIC INFORMATION	VENDOR SPECIFIC DATA	00h	RO	NOT SUPPORTED

NOTES:

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- DEVICE ADDRESS: CONFIGURABLE VIA CADDR, A0h FOR CADDR = 0, A2h FOR CADDR = 1

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TITLE CABLE, X8 SFF-8654 TO 2X SFF-8644 X4, NO SIDEBANDS, 1M		SIZE D	DWG NO. 5067-8630
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