



Fibre Channel GT System

App Note *GT-SW-FICON* FICON Decode

Optional FICON Protocol Decode for TraceView

Finisar's GT System provides an option for decoding the FICON protocol. This decode option expands the abilities of *GT-TraceView* to interpret and display FICON (SB-2) data in the same way it currently displays FC-2 layer frame and FC-4 layer SCSI protocol information.

The figure below shows FICON (SB-2) data captured using the *GT-Analyzer* and displayed using the Event Information window in *GT-TraceView* version 3.20.

GT-TraceView version 3.20 is available free of charge to all users.

Contact Finisar for information regarding the purchase of the FICON decode option.

The screenshot shows the TraceView interface with the following data:

Event	Book	Timestamp (ns)	Delta (ns)	Port (A/B)	A Port Activity	B Port Activity	P/L Data
Write	0000	00000107962		1-A	FC4Cmd		Ch Image ID = 04; Control Unit Image ID = 00; ... 0044 SOF3 FC4Cmd 00FF00 0C
		000000000108715	0.753	1-A	= 1057 - Idle		
		000000000111075	2.360	2-A	FC4Cmd		Ch Image ID = 04; Control Unit Image ID = 00; ... 0044 SOF3 FC4Cmd 00FF00 0C
		000000000111020	0.753	2-A	= 1057 - Idle		
		000000000113175	1.347	2-B		= 0001 - R-R...	
		000000000113213	0.038	2-B		= 1075 - Idle	
		000000000116363	3.150	1-B		= 0001 - R-R...	
		000000000116400	0.038	1-B		= 1075 - Idle	
		000000000148500	32.100	1-A	FC4Cmd		Ch Image ID = 04; Control Unit Image ID = 00; ... 1524 SOF3 FC4Cmd 00FF00 0C
		000000000151612	3.112	2-A	FC4Cmd		Ch Image ID = 04; Control Unit Image ID = 00; ... 1524 SOF3 FC4Cmd 00FF00 0C

Event/Word	Byte 0	Byte 1	Byte 2	Byte 3	Interpretation
Ordered Set	K28.5	85	56	56	SOF3
FC Header 001	06	00	FF	00	RDJ = FC4Cmd; D_Id = 00FF00;
FC Header 002	00	00	2C	00	S_Id = 002C00;
FC Header 003	10	00	00	00	Type = SICC SCSI; F_Ctl = 0x ; S_C ; E_S ;
FC Header 004	75	00	00	00	SEQ_Id = 75; DF_Ctl = 00; SEQ_Ctl = 0000;
FC Header 005	00	8A	FF	FF	D_Id = 008A; R_Ctl = FFFF;
FC Header 006	00	00	00	00	PARA = 00000000;
Payload 001	00	04	24	00	Ch Image ID = 04; Control Unit Image ID = 00;
Payload 002	00	04	00	00	Device Address = 0004;
Payload 003	14	90	03	00	IUD AS = AS; 0n; IUD ES = ES; 0n; IUD DIB Type = Command/Data; IUD DHF End = DHF END; 0n; IUD DHF EndChannel = DHF END_CH; 0.
Payload 004	00	00	00	01	Token = 000001;
Payload 005	31	40	00	05	CCW Command = Write(D31); CCW Flags - PCI = CCW Flags
Payload 006	00	00	00	02	Command Flags - SSS = CF - SSS; 0n; Command Flags - REX = Command Flags - REX; 0n; Command Flags - SSS = CF - SSS; 0n; Command Flags - CDC = CF - C...
Payload 007	00	04	00	05	IJ Count = 04; DIB DB Count = 0005;
Payload 008	80	8E	82	59	
Payload 009	00	05	00	04	
Payload 010	00	00	00	00	
Payload 011	39	2E	9A	CD	
CRC	56	CA	B4	F2	
Ordered Set	K28.5	95	75	75	EDR

Point at decode name for definition and to mark associated frame words.

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FICON decode information can also be seen from Protocol View within GT-TraceView as shown below. This view eliminates the ordered sets and displays frames on the left and event information on the right.

Press PV icon for Protocol View.

The screenshot shows the GT-TraceView interface. The left pane displays a list of frames with the following columns: Time (hh:mm:ss), Length (us), Direction (D), Priority (P), and Payload Data (P/L Data). The right pane shows the 'Event Information' for a selected frame, with sub-sections for Hex Data, Event Profile, and FC Definitions. A callout points to the 'PV' icon in the toolbar, indicating that pressing it switches to Protocol View.

Time	Length	Dir	P	P/L Data	SDF	R_CTL
00:00:000 111.075	3.113	2-A		Ch Image ID = 04; Control ...	SDF3	FC4Cnd
00:00:000 148.500	37.425	1-A		Ch Image ID = 04; Control ...	SDF3	FC4Cnd
00:00:000 151.612	3.112	2-A		Ch Image ID = 04; Control ...	SDF3	FC4Cnd
00:00:000 163.425	11.813	1-A		Ch Image ID = 04; Control ...	SDF3	FC4Cnd
00:00:000 168.500	3.075	2-A		Ch Image ID = 04; Control ...	SDF3	FC4Cnd
00:00:002 691.975	2525.475	2-B		Ch Image ID = 04; Control ...	SDF3	FC4SData
00:00:002 695.162	3.188	1-B		Ch Image ID = 04; Control ...	SDF3	FC4SData
00:00:002 736.767	41.625	2-B		Ch Image ID = 04; Control ...	SDF3	FC4SData
00:00:002 739.975	3.188	1-B		Ch Image ID = 04; Control ...	SDF3	FC4SData
00:00:002 804.963	64.968	1-A		Ch Image ID = 04; Control ...	SDF3	FC4SCtl
00:00:002 808.075	3.112	2-A		Ch Image ID = 04; Control ...	SDF3	FC4SCtl
00:00:002 854.650	46.575	2-B		Ch Image ID = 04; Control ...	SDF3	FC4SCtl
00:00:002 857.838	3.188	1-B		Ch Image ID = 04; Control ...	SDF3	FC4SCtl
00:00:002 908.500	50.662	2-B		Ch Image ID = 02; Control ...	SDF3	FC4UCtl
00:00:002 911.688	3.188	1-B		Ch Image ID = 02; Control ...	SDF3	FC4UCtl
00:00:002 982.037	70.350	1-A		Ch Image ID = 02; Control ...	SDF3	FC4SCtl
00:00:002 985.112	3.075	2-A		Ch Image ID = 02; Control ...	SDF3	FC4SCtl
00:00:003 163.575	178.463	2-B		Ch Image ID = 02; Control ...	SDF3	FC4SCtl
00:00:003 166.800	3.225	1-B		Ch Image ID = 02; Control ...	SDF3	FC4SCtl
00:00:003 216.975	50.175	1-A		Ch Image ID = 00; Control ...	SDF3	FC4SCtl
00:00:003 220.088	3.113	2-A		Ch Image ID = 00; Control ...	SDF3	FC4SCtl
00:00:003 458.325	238.237	2-B		Ch Image ID = 01; Control ...	SDF3	FC4UCtl
00:00:003 461.512	3.188	1-B		Ch Image ID = 01; Control ...	SDF3	FC4UCtl
00:00:003 519.375	57.863	1-A		Ch Image ID = 01; Control ...	SDF3	FC4SCtl
00:00:003 522.487	3.112	2-A		Ch Image ID = 01; Control ...	SDF3	FC4SCtl
00:00:004 692.337	1169.850	2-B		Ch Image ID = 01; Control ...	SDF3	FC4SCtl
00:00:004 695.525	3.188	1-B		Ch Image ID = 01; Control ...	SDF3	FC4SCtl
00:00:004 738.800	43.275	1-A		Ch Image ID = 00; Control ...	SDF3	FC4SCtl
00:00:004 741.875	3.075	2-A		Ch Image ID = 00; Control ...	SDF3	FC4SCtl
00:00:004 767.863	25.968	2-B		Ch Image ID = 01; Control ...	SDF3	FC4UCtl
00:00:004 771.050	3.188	1-B		Ch Image ID = 01; Control ...	SDF3	FC4UCtl
00:00:004 825.350	54.300	1-A		Ch Image ID = 01; Control ...	SDF3	FC4SCtl
00:00:004 828.425	3.075	2-A		Ch Image ID = 01; Control ...	SDF3	FC4SCtl

Event Word	Byte 0	Byte 1	Byte 2	Byte 3	Interpretation
Ordered Set	K28.5	65	56	56	SDF3
FC Header 001	03	00	FF	00	FCi = FC4SDi; D_Id = 00FF00;
FC Header 002	00	00	2C	00	S_Id = 002C00;
FC Header 003	18	18	00	00	Type = SBCC SCS; F_Di = 0K; S_C_I : L_S :
FC Header 004	74	00	00	00	SEQ_Id = 74; DF_Ci = 00; SEQ_Cn = 0000;
FC Header 005	00	BA	FF	FF	Di_Id = 00BA; RDi_Id = FFFF;
FC Header 006	00	00	00	00	PAPA = 00000000;
Payload 001	00	04	24	00	Ch Image ID = 04; Control Unit Image ID = 00;
Payload 002	00	04	00	00	Device Address = 0004;
Payload 003	13	00	00	00	IUID AS = AS; On; IUID ES = ES; On; IUID DIB T
Payload 004	00	00	00	01	Token = 000001;
Payload 005	AD	00	00	00	Control Function = CtlFunc:Stat Accepted; Ctl P.
Payload 006	00	00	00	00	
Payload 007	00	07	00	00	IU Count = 07; Control Function: Status Accepted
Payload 008	16	50	81	5B	
CRC	96	5A	C9	EE	
Ordered Set	K28.5	95	75	75	EDF1

Left window shows frame data only.

Right window shows detailed decode of the highlighted frame.