Chapter 53

Using the KAM/MEM/113

TEC/NOT/083



The KAM/MEM/113 is a CompactFlash® memory module that records parameters from the Acra KAM-500 backplane in a PCAP format using either IENA and/or iNET-X packets.

This paper discusses the following topics:

53.1 Setting up the KAM/MEM/113 using DAS Studio 3

- "53.1 Setting up the KAM/MEM/113 using DAS Studio 3" on page 1
- "53.2 Setting up the KAM/KAM/MEM/113 using KSM-500" on page 4
- "53.3 Formatting the CompactFlash card to be used on the KAM/KAM/MEM/113" on page 6
- "53.4 Troubleshooting and tips" on page 13

This section explains how to set up the KAM/MEM/113 using DAS Studio 3. For the example screens shown, you need to add a chassis, controller module, a KAM/TCG/105, and a KAM/MEM/113 module to the configuration. For information on adding modules, see the DAS Studio 3 User Manual.

53.1.1 Parameters

To see available parameters in the KAM/MEM/113 module, select the module in the Navigator and then click the Settings tab.



Figure 53-1: Parameters available in the KAM/MEM/113

Only the Report parameter can be recorded in KAM/MEM/113 packets. For information on the Status and Report parameters, see "53.4.8 Status and Report parameters" on page 14.

For details on the ErrorCount parameter, refer to the KAM/MEM/113 data sheet.

53.1.2 Triggers

Triggers from any available 16-bit parameters on the backplane can be used to trigger recording on the KAM/MEM/113. The following example shows how to trigger the KAM/MEM113 when a KAM/TCG/105 module has GPS lock.

1. On the **Settings** tab for the KAM/MEM/113 module, click the *i* icon to add a process.

	Settings Processes Packages
mem113_erase_process.xidml	Parameter Parameter Type Name
KAM/CHS/13U MyKAM_CHS_13U	Status P_MyKAM_MEM_113_Status
Z KAD/BCU/140/D MYKAD_BCU_140_D 3 KAD/DSI/003/B MYKAD_DSI 003 B	Report P_MyKAM_MEM_113_Report
4 KAM/MEM/113 MyKAM_MEM_113	ErrorCount P_MyKAM_MEM_113_ErrorCount
5	+ -
7	Source Process Trigger Sample Pate
8	Name Name Condition Cample Nate
9 10	FlashCard TriggerA
11	+ -
12	Source Process Trigger
13	Name Name Condition Sample Rate
15	FlashCard TriggerB



2. In the Trigger Condition field, click the drop-down arrow and then click Add.

+ -							
Source Name	Process Name	Trigger Condition	Sample Rate				
FlashCard	TriggerA	•	1				
+ -		Add					
	_	Reputce					
Name	Process Name	Disconnect					
FlashCard	TriggerB						

3. In The Algorithms Palette, select MyBooleanSimpleAlgorithm and then click Add.

The Algorithms Palette	
	Boolean-Simple Window-Function-Alarm
	Name Operation
•	MyBooleanSimpleAlgorithm XOR
New ACRA Component	
	Renaming Rules
This File	◯ Use My Renaming Rules
	Rename To: MyNewAlgor
K.	Prepend Text To Name(s) recursively: MyPrefix
	Append Automatically Generated Unique ID (if necessary)
Import	O Use Automatic Renaming Rules
8 -	Add Add With Connections Cancel

The Parameters Palette opens.

Parameters Palette					
	Parameters				
30	Name	Bits	Units	Data Format	Source Chassis
	P_MyKAD_DSI_003_B_Counter(5)_Counter(5)	32	Second	OffsetBinary	MyKAM_CHS_13U .
New ACRA Component	P_MyKAD_DSI_003_B_Counter(6)_Counter(6)	32	Second	OffsetBinary	MyKAM_CHS_13U
	P_MyKAD_DSI_003_B_Counter(7)_Counter(7)	32	Second	OffsetBinary	MyKAM_CHS_13U
	P_MyKAD_DSI_003_B_Discrete	32	BitVector	BitVector	MyKAM_CHS_13U
	P_MyKAD_DSI_003_B_TagIrigTime48	48	BitVector	BitVector	MyKAM_CHS_13U
~~	P_MyKAD_DSI_003_B_TagStatus	16	BitVector	BitVector	MyKAM_CHS_13U
This File	P_MyKAM_MEM_113_ErrorCount	16	BitVector	BitVector	MyKAM_CHS_13U
	P MyKAM MEM 113 Report	16	BitVector	BitVector	MyKAM CHS 13U
	P MyKAM MEM 113 Status	16	BitVector	BitVector	MyKAM CHS 13U
1.	P MyKAM TCG 105 ControlFunction	32	BitVector	BitVector	MyKAM CHS 13U
3	P MyKAM TCG 105 DayOfYear	16	BitVector	BitVector	MyKAM CHS 13U
Import	P MyKAM TCG 105 GPS-In Altitude	32	BitVector	BitVector	MyKAM CHS 13U
import	P MyKAM TCG 105 GPS-In DilutionOfPrecision	16	BitVector	BitVector	MyKAM CHS 13U
	P MyKAM TCG 105 GPS-In Heading	32	BitVector	BitVector	MyKAM CHS 13U
	P MyKAM TCG 105 GPS-In Latitude	48	BitVector	BitVector	MyKAM CHS 13U
	P MyKAM TCG 105 GPS-In Longitude	48	BitVector	BitVector	MyKAM CHS 13U
	P MyKAM TCG 105 GPS-In StatusGPS	16	BitVector	BitVector	MyKAM CHS 13U
	P MyKAM TCG 105 GPS-In VelocityInKn	16	Unitless	BinaryCodedDecimal	MyKAM CHS 13U
	P MyKAM TCG 105 GPS-In VelocityInKoh	16	MetersPerSecond	BinaryCodedDecimal	MyKAM CHS 13U
	P MyKAM TCG 105 IrigTime48	48	BitVector	BitVector	MyKAM CHS 13U
	P MyKAM TCG 105 StatusIn	16	BitVector	BitVector	MyKAM CHS 13U
	P_MyKAM_TCG_105_StraightBinarySeconds	16	Second	OffsetBinary	MyKAM_CHS_13U
	· ·				+
			Add	Reference	Cancel

- 4. Click This File, then select TCG_105_GPS-In_StatusGPS and then click Add Reference.
- 5. To set the trigger mask, click the **Algorithms** tab.

Settings 💌	Processes 💌	Packages 💌	Algorithms	•	Documentation			
Bit Mask Alarm								
Algorithm Name		Trigger Mask						
MyBooleanSimpleA	1*** ****	**** ****						



- 6. In the Trigger Mask field, type 1*** **** *****.
- This mask ignores all other bits except bit 15 and triggers (via GPS status lock) when bit 15 is 1.
- 7. Under Log Condition, click the drop-down arrow and then select Triggered Until Full.

Recorder		
Wrap Around 🍸	Log Condition 🍸	Trigger Truth Table
	Triggered Until Full 👻	Trigger A v
Packet Generation	Triggered Always Log	
Dummy IP Address	Triggered Until Full	

8. Under Trigger Truth Table, click the drop-down arrow and then select Trigger A.

Kecorder									
Wrap Around 🍸	Log Condition 🍸	Trigger Truth Table ▽							
	Triggered Until Full 🗵	Trigger A 🗸 🗸							
Packet Generation		Trigger A							
		Trigger B 😡							
Dummy IP	Dummy MAC	Trigger A or B							
Address "	Address "	Trigger A and B							

Note: If Log Condition is Triggered, recording stops as soon as the trigger condition is removed. For example, the trigger is bit 15 when 1 on parameter P1, recording starts when bit 15 is 1 on P1; recording stops when bit 15 is 0.

For more information, refer to the "Algorithms tab" chapter in the DAS Studio 3 User Manual.

53.1.3 Other settings

Refer to the KAM/MEM/113 data sheet for a description of the fields in the following figure.

PTP Leap Seconds	Current Year	IENA	Only		
37	2017	[
Wrap Around	Log Conditi	Condition Trigger Tr Table			
	Always Lo	g •	Trigger A 🔻		
Dummy IP Address	Dummy MAC Address				
192.168.28.1	00-0C-4D-00-0)3-10			
Allow Erase	Idle Format	Eras	e Format		
	4	8			

Figure 53-2: Other settings

For the Erase/Format fields at the bottom of the screen, refer to "53.3.1 Format a CF card using the erase format from the KAM/KAM/MEM/113" on page 6.

53.1.4 Adding packets to the KAM/MEM/113

Just as with an Ethernet transmitter, you can define which packets are logged to the KAM/MEM/113. Refer to the following.

1. In the Navigator, click the KAM/MEM/13 and then click the Outputs node to expand it.



2. Right-click the Flashcard output and then select Add/Import Package.



Packages Palette opens.

3. On the **iNET-X** tab, select a package such as **MyPlacediNET-XPackage** (this is a transmission package, and is empty by default), and then click **Add**.



On the **Packages** tab you can define the Package Name, Stream ID, Destination IPA and Destination UDP Port. You can also add parameters as you would with other Ethernet transmitters.

	Settings 💌	Processes	•	Packages 🔻	Algorithm	s 🕶 🛛 D	ocumentation 💌				
	 Channels 										
nfiguration.xidml	🕈 🌴										
AM/CHS/13U MyKAM_CHS_13U	Instrument	Channel	Dis Date	Connection		Conne	ected Connected	Package			_
2 KAD/BCU/140/D MyKAD_BCU_140_[Name	Name	DILINALE	Name		Instrun	ment Channel	Count			
3	MyKAM_MEM_11	3 FlashCard	n/a	Link_MyKAM_M	EM_113_Fla	shCard		1			
4											
5											
6 KAM/MEM/113 MyKAM_MEM_113	 Package Prop 	erties									
🔨 🛶 Outputs	4 - 4										
FlashCard Link_MyKAM_ME	-	_									-
	Name	Ra	ate (Hz) 1	Type Sub Type	Stream ID	Source IPA	Source UDP	Port Destination MAC	Destination IPA	Destination UDP Por	t I
9	MyPlacediNET-	XPackage 10)	Net-X Placed	00	000.000.000.0	000 0	01-00-5E-00-00-0	1 235.0.0.1	0	'
10											

For further information, refer to the "Packages tab" chapter in the DAS Studio 3 User Manual.

53.2 Setting up the KAM/KAM/MEM/113 using KSM-500

This section explains how to set up the KAM/MEM/113 using KSM-500.

53.2.1 Parameters tab

Refer to the KAM/MEM/113 data sheet for descriptions of the bit settings of the parameters shown in the following figure. In KSM-500, all these parameters can be recorded into KAM/MEM/113 packets.



Module Setup						
Information Chassis KAM/CHS/09U	Slot M	dodule <mark>KAM/M</mark>	EM/113	0	Seria	al Number
Parameters Packets	Setup					
Parameter Name	Mode	Value	Bit Size	Packages	Commen	
*	*	* 🔻	* •	* •	* •	
CF_STATUS_0_J3	CF_STATUS	N/A	16	View		
ERROR_COUNT_0_J3	ERROR_COUNT	N/A	16	View		
REPORT_0_J3	REPORT	N/A	16	View		

Figure 53-3: Parameters tab

NOTE: CF_STATUS is referred to as STATUS in the *KAM/MEM/113* data sheet.

53.2.2 Setup tab

The following screen shows setup options for the module.

3	Module Setup		
)	Information Chassis S KAM/CHS/09U 3	ilot Module Serial Number	
;	Parameters Packets Setup		
	Source MAC address:	802.1 <u>Q</u> Settings	
	00-0C-4D-00-03-10	llo <u>w</u> IEEE 802.1Q tags on data frames	
	Source IP Address:	efault TCI to use: 0x0000	
	127.0.0.1 F	Priority level - Class of Service	
	Source UDP Po <u>r</u> t	1 - Best Effort	
	1025	12 bit VLAN ID (hex): 0x000	
	Target IENA System	PTP Leap Seconds: 35	
	Log Conditions:		
	C Log while triggered		
	C Log triggered until CF is full		
	O <u>N</u> ever log		
	Delay after power up, in cycles: 2	Allow Erase CF at format: 14	
	□ Wrap around when card get full		

Figure 53-4: Setup tab

IEEE 802 Q tags are specific Ethernet fields, which can be added to Ethernet packets. For more information, contact Curtiss-Wright support (acra-support@curtisswright.com).

Delay after power up, in cycles means that the KAM/MEM/113 does not record, even if triggered for the amount of acquisition cycles specified.

The other fields are explained in the KAM/MEM/113 data sheet.

53.2.3 Building packets

This user interface is the same as for other Ethernet transmitters in KSM-500. To add a packet.

1. Click the **Packets** tab.



2. Right-click the Packets pane, click Add Packet, and then click IENA STANDARD or iNET-X PLACED.

🕶 kSetup 1.18.1									
File Tools Help									
12 😂 🛃 12 2 🗞	Acquisition Cy	vde: 0.01 s	 Rate: 100.000 	0000 Hz 💌					
mem113_erase_proces for KAM/CHS/09U for KAM/CHS/09U for KAM/CHS/09U for KAD/BCU/140 for KAM/MEM/111	Module Setup Information Chassis KAM/CHS/09U	l	Slot Module	M/1130	Serial Number				
114 KAD/DSI/003/	Parameters Pa	ackets Setup							
15 16 	Packet Name	Packet Type	Key/StreamID	Packets per Acquisition Cycle	Destination IP Address	Destination Port	MAC Address	IEEE 802.1Q TCI	Staggering
<u>113</u> .J8	* 🔻	*	*	*	*	r *	* •	*	* •
- 19 - 10 - 11 11 12 Power Supply			Add Packet Remove Pack Open Packet Open Packet	et IENA STAN NET-X PLA Staggering	DARD CED				
			Autosize Sort Find Page Setup Print						

As the procedure for adding parameters is the same for both IENA and iNET-X placed packages, you can refer to the "Adding IENA packets" section in *TEC/NOT/053 - Using the KAD/BCU/105* for more information.

Note: If there is a packetizer module in the chassis, such as a KAD/ABM/103, packetizer packet types can be added.

53.3 Formatting the CompactFlash card to be used on the KAM/KAM/MEM/113

Each CompactFlash (CF) card must first be formatted before it can be used in the KAM/KAM/MEM/113. One of the following methods can be used for formatting:

- Format a card using an SSR/CHS/001/B (see the Multi-role Recorder's User Guide).
- Format a card using the erase format on the KAM/MEM/113.
- Format a card using a software utility (ssrformat) to format the CF card on a PC. Note, this software utility can only be used if the card has already been formatted using one of the above two methods.

53.3.1 Format a CF card using the erase format from the KAM/KAM/MEM/113

Formatting the CF card creates pre-allocated empty files for storing recordings in a flat directory structure. The purpose of formatting the CF card is to allow the KAM/MEM/113 to record in contiguous locations on the CF card and to ensure that no other files are stored or created on the CF card.

The KAM/MEM/113 can be configured to enable erase and the user can select the format number.

Factory		
Allow Erase 🍸	Idle Format 🍸	Erase Format 🍸
V	4	8

Figure 53-5: DAS Studio 3 example of Allow Erase and Erase Format

The erase/idle format number has to be used in conjunction with the Backplane Controller Unit (BCU). The BCU must support format select (such as on a KAD/BCU/101) or Shunt Mode (such as a KAD/BCU/140/C and subsequent revisions).

The KAD/BCU/101 format support has to be selected through the physical pins on the module (refer to the KAD/BCU/101 data sheet for further information). If Allow Erase is enabled and Erase Format is set to 8, providing 5V (BVDD) to the Format(3) pin starts the erase format process of the KAM/MEM/113.

The KAD/BCU/140/C (and subsequent revisions) can initiate the erase format on the KAM/MEM/113 by sending an event packet from a PC to the BCU. Contact Curtiss-Wright support (acra-support@curtisswright.com) to request the *TSD-AC-021* support document. This support document contains a python script that sends this event packet from PC to BCU.

The KAD/BCU/140/C (and subsequent revisions) can also initiate the erase format on the KAM/MEM/113 by sinking a parameter (such as the Discrete parameter of a DSI module) with the value of the erase format into the shunt process of the BCU.



NOTE: We don't recommend using KSM-500 to format a CF card.

53.3.2 Formatting a CF card on a KAM/MEM/113 in DAS Studio 3

For the following procedure, you require a chassis with a KAD/BCU/140/C (/C subsequent revision), KAD/DSI/003/B, and KAM/MEM/113 modules.

- 1. Go to the Settings tab of the KAM/MEM/113.
- 2. Select the Allow Erase check box and set Erase Format to 8.



- 3. Go to the Settings tab of the KAD/BCU/140/D.
- 4. Select the Shunt Mode check box.

	Settings 💌	Processe	s 🔻	Packages 💌	Algorithms 🔻		
Immilia erace nrocess vidmi*	Parameter		Parame	Parameter Name			
A KAM/CHS/13U MyKAM_CHS_13U	DayOfVear		P M	R MuKAD POLI 140 D DayOfficar			
2 KAD/BCU/140/D MyKAD_BCU_140_D	IrinTime/8			WAD BOU 140_D	IrigTime/8		
3 KAD/DSI/003/B MyKAD_DSI_003_B 4 KAD/DSI/003/B MyKAD_DSI_003_B	higTime/8 · Time			JIOND_DOO_140_D	_ingrino+o		
✓ 4 KAM/MEM/113 MyKAM_MEM_113 5 5 1	InigTime40. Time						
6	Ingrime40: Time	LO					
7	ing i me4o : i ime	MICRO					
8	Report		• P_M	VKAD_BCU_140_D	_Report		
9	PTPTimeError		• P_M	yKAD_BCU_140_D	_PTPTimeError		
11	ShuntValue		■ P_M	yKAD_BCU_140_D	_ShuntValue		
12	TypeNumber		P_M	yKAD_BCU_140_D	TypeNumber		
13 14	Is Leap Year	IP Address	IENA On System	ly			
15	1	92.168.28.1	1				
	+ + 1024		0	Remaining 102	24 Maximum 1024		
	Source Name Fixed	Value					
	PTP Protocol	P	PTP Grandma	aster PTP Leap Seconds	Synchronisation Level		
	PTPv2 Delay Re	eq 🔹		35	500		
	PTPv1 Subdoma	n PTPv Interv	1 Sync al				
	_DFLT	2					
	PTPv2 Subdomain						
	0						
	Shunt Mode						



5. Go to the Settings tab of the KAD/DSI/003/B.



6. In the **Discrete : DiscreteLo** row, click the drop-down menu and then click **Add new parameter**. A **MyDiscreetLo** parameter is added.

	Settings 💌	Processes	•	Packages 💌	Algorithms
mem113_erase_process.xidml*	Parameter Type		Parameter Name		
KAM/CHS/13U MyKAM_CHS_13U	TaglrigTime48		▼ P_M	yKAD_DSI_003_B_	TaglrigTime48
2 KAD/BCU/140/D MyKAD_BCU_140_D	TaglrigTime48 :	TagTimeHi	-		
A 3 KAD/DSI/003/B MyKAD_DSI_003_B	TagIrigTime48 :	TagTimeLo	•		
∽ 🔶 Inputs	TaglrigTime48 :	TagTimeMicro	•		
4 KAM/MEM/113 MyKAM_MEM_113 5 4	TagStatus		▼ P_M	yKAD_DSI_003_B_	TagStatus
5 <u> </u>	Discrete		• P_M	yKAD_DSI_003_B_	Discrete
7	Discrete : Discret	teHi	•		
8	Discrete : Discret	teLo	MyD	iscreteLo	

7. Go to the **Processes** tab of the KAD/BCU/140/D and then click **Add a Shunt process to instrument MyKADBCU_140_D**.

	Settings 💌	Processes 💌	Packages 💌	Algorithms 💌
mem113_erase_process.xidml KAWCHS/13U MyKAM_CHS_13U KADIBCU/140/D MyKAD_BCU_140_D	Add a Shunt proce Add a Fixed-Word	(0) process to instrument MyKAI	DBCU_140_D nt MyKADBCU_140_D]

8. Click the ShuntRegister drop-down menu and then click Add parameter from palette.

	Settings 💌		Processe	es 🔻	Packages 🔻	Alg		
mem113_erase_process.xidml* Michailand MyKAM_CHS_13U Michailand MyKAM_CHS_13U Michailand MyKAD_BCU_140_D Michailand Michailand Michailand Michailand Michailand Michailand Michailand Michailand Michailan	+ I A Source Name Shunt	+ V Add Parameters V Remove Parameters Source ShuntRegister Shunt V						
3 KAD/DSI/003/B MyKAD_DSI_003_B	Add a Fixed		Add new	parameter	r			
4 KAM/MEM/113 MyKAM_MEM_113			Add para	ameter from	n palette			
→ Outputs			Replace					

- 9. In the Parameters Palette, click the This File library.
- 10. Click the **MyDiscreteLo** parameter and then click **Add Reference**.
- The MyDiscreteLo parameter from the KAD/DSI/003/B is sunk into the shunt register on the Process tab.

	Settings	Packages 💌 🕴
mem113_erase_process.xidml* Memory CHS/13U MyKAM_CHS_13U CHS/13U MyKAM_CHS_13U CHS/13U MyKAM_CHS_13U	+ V Add Parameters - V Source Name ShuntRegister	Remove Parameters
✓ → Outputs	Shunt MyDiscreteLo	
3 KAD/DSI/003/B MyKAD_DSI_003_B	Add a Fixed-Word(0) process to instrume	ent MyKADBCU_140_D
4 4 KAM/MEM/113 MyKAM_MEM_113		

 Apply a voltage above the threshold defined in the KAD/DSI/003/B Discrete(3) and a voltage below the threshold defined in the KAD/DSI/003/B Discrete(0), Discrete(1) and Discrete(2), to get 1000 in binary, which is 8 in decimal into the Status_15_0 parameter.

The erase format on the KAM/MEM/113 starts.



53.3.3 Formatting a CF card on a KAM/MEM/113 using fixed data in DAS Studio 3

For the following procedure, a chassis with a KAD/BCU/140/C (/C subsequent revision) and a KAM/MEM/113 module are required.

- 1. Go to the Settings tab of the KAM/MEM/113.
- 2. Select the Allow Erase check box and set Erase Format to 8.



3. Go to the Settings tab of the KAD/BCU/140/D.

\bigcirc	Settings	Processes	Packa	iges	Algorithms
formatCFnnMEM113.xidml*	Parameter , Type	7	Paramete Name	۲ T	
 Formacc-ministra 113:xkame KAM/CHS/13U MyKAM_CHS_13U 2 KAD/BCU/140/D MyKAD_BCU_140_D 3 4 5 6 KAM/MEM/113 MyKAM_MEM_113 • → Outputs 7 8 9 10 11 12 13 14 15 	DayOfVear IrigTime48 IrigTime48 IrigTime48 IrigTime48 IrigTime48 IrigTime48 Report PTPTimeErrc ShuntValue TypeNumbe Is Leap Year + + 102 Source Name	TimeHi TimeLo TimeMicro r IP Ac 192.1 Fixed V	▼ P_Myk ▼ P_Myk ▼ ▼ P_Myk ▼ P_Myk ▼ P_Myk ▼ P_Myk ▼ P_Myk ddress ▼ 68.28.1	CAD_BCU CAD_BCU CAD_BCU CAD_BCU CAD_BCU CAD_BCU CAD_BCU CAD_BCU CAD_BCU CAD_BCU CAD_BCU CAD_BCU CAD_BCU CAD_BCU CAD_BCU CAD_BCU	140_D_Da 140_D_Irig 140_D_Irig 140_D_Pri 140_D_PT 140_D_Shi 140_D_Tyj n ¹ y 1 100_Tyj 101 1024

Click + (Adds a single process).
 A Fixed-Word(0) is added to the Source Name field.



5. At the Fixed-Word(0) field, add a fixed data with a fixed value of 8 and then select the Shunt Mode check box.

 (i) 	Settings	Processes	Pack	ages Al	gorithms	Documentation			
	Parameter Type	Y	Paramete Name	rγ					
∧ ■ KAM/CHS/13U MyKAM CHS 13U	DayOfVear	DayOfVear		R MyKAD BCII 140 D DayOfYear					
2 KAD/BCU/140/D MyKAD_BCU_140_D	IrigTime48		▼ P Mvł	CAD BCU 14	to D IriaTim	ve48			
3	IrioTime48	TimeHi		•					
4	IrigTime48	Timel o	-						
6 KAM/MEM/113 MyKAM_MEM_113	IriaTime48 :	TimeMicro	•						
70	Report		- P My	CAD BCU 14	10 D Report				
9	PTPTimeErr	or	▼ P_Myl	CAD_BCU_14	40_D_PTPTin	neError			
10	ShuntValue		+ P_Myl	AD_BCU_14	10_D_ShuntV	alue			
11	TypeNumbe	er	▼ P_Myl	CAD_BCU_14	40_D_TypeNu	umber			
13 14	Is Leap Yea	r 🍸 IP Ad	ddress 🍸	IENA Only System	Y				
15		192.1	68.28.11	П					
	+ + 10	-	1	Remainin	ig 1023 M	aximum 1024			
	Source Name	Fixed V	alue 🍸						
	Fixed-Word	(0) 8							
	Time								
	PTP Protoc	ol Y	PTP Gran	dmaster 🍸	PTP Leap , Seconds	Synchronisatio			
	PTPv2 Del	ay Req \vee			35	500			
	PTPv1								
	PTPv1 Subo	domain 🍸	PTPv1 Sy Interval	nc 7					
	_DFLT		2						
	PTPv2								
	PTPv2 Subr	domain 🔽							
	0								
	Mode]						
		_							
	Shunt Mod	ie 7							
	IENA								

6. Go to the **Processes** tab of the KAD/BCU/140/D and then click **Add a Shunt process to instrument MyKADBCU_140_D**.

	Settings	Processes	Packages	Algorithms	Documentation
	Processes				
✓ formatCFnnMEM113.xidml	Add a Shunt	process to instru	ument MyKADE	3CU_140_D	
KAM/CHS/13U MyKAM_CHS_13U	+ + 102	23 🗸 Add P	arameters .	– 1 🗸 F	Remove Parameters
2 KAD/BCU/140/D MyKAD_BCU_140_D					
3 4	Source Name マ	Fixed-Word	(0) 了		
5		•			
V OU KAM/MEM/113 MYKAM_MEM_113					

7. Click + Fixed-Word(0) and rename to myfw.

Settings	Processes	Packages Algorithms		Documentation
Processes				
+ 🗸 Ad	d Parameters	— 🔽 Remo	ve Parameters	
Source Name ア	ShuntRegister	Y		
+ + 102	23 🗸 Add P	arameters -	- <u>1</u> 🗸 F	Remove Parameters
Source Name マ	Fixed-Word	(0) 7		
Fixed-Word(0) v myfw			



8. Click + Processes.





9. Click the drop-down arrow and then click Replace.



10. From the This File library, select the myfw fixed data parameter and then click Add Reference.

•	Settings	Processes	Packages	Algorithms	Documentation		
+	Processes						
▲ formatCFinMEM113.xidml ▲ ■ KAM/CHS/13U MyKAM_CHS_13U	+ 🗸 Ad	ld Parameters	- 🗸 Remo	ove Parameters			
2 KAD/BCU/140/D MyKAD_BCU_140_D	Source Name	ShuntRegister	Y				
3	Chunt	- 611					
4	Shunc	• /w					
✓ 6 KAM/MEM/113 MyKAM_MEM_113	+ + 10	23 🗸 Add F	Parameters	- 1 🗸	Remove Parameters	Remaining 1023	Maximum 1024
7	Source					1	
8	Name T	Fixed-Word	(0) 了				
9	Fixed-Word	(0) - myfw					
11							
12							
13							
14							
15							

- 11. Program the system and monitor the KAM/MEM/113 status word. You should see bit 2 (formatting) at 1 and the bit[15:8] incrementing.
 - **NOTE:** It should take only few minutes to format a 32-GB CF card. When formatting is done, bit 2 should go to 0 indicating the system is ready for programming.



53.3.4 Formatting a CF card using a software utility (ssrformat) on a PC

SSRformat.exe (AcraCD_SWS-FMT-001-01, version 1.1.0.2) supports the file system used on the KAM/MEM/113.

Use the below command line:

ssrformat.exe -2 -n <Drive Letter>

where:

-2 = the file system to use.

-n = no trim (trim only applies to SSD disks)

<Drive Letter> (optional) drive letter for the CF card which is plugged into the CF card reader connected to the PC. In this example, the drive letter is H.

🛤 Administrator: CMD - Shortcut	<u>- 🗆 ×</u>				
C:\ACRA\SSRFormat>ssrformat.exe -2 -n					
logical drive : "H:" ["\Device\HarddiskVolume16"] physical drive : "\\.\PhysicalDrive1" media type : removable capacity : 29 Gb file system version : 2					
ALL DATA ON VOLUME >>> H <<< WILL BE DESTROYED. Press ESC to exit or Y to start formatting : Y Formatting the disk Done. Task has been completed in 5.3 seconds.					
C:\ACRA\SSRFormat>	•				

Figure 53-6: Example of ssrformat result run successfully with CF card on drive H

NOTE: When the drive letter is added to the command line of ssrformat, the formatting process for a 32-GB CF card should take a few seconds; ssrformat does not provide information to indicate successful formatting of the card.

The following screen shows the ssrformat result if the CF card was not previously formatted on either an SSR/CHS/001/B or a KAM/MEM/113. If the drive letter is displayed in the command line, nothing is reported. However, if the drive letter is not displayed in the command line, ssrformat scans all devices connected to the computer. If the CF card is not attached to the computer—or the CF card was not pre-formatted for use in the KAM/MEM/113—ssrformat returns a *cannot find any disk suitable for formatting* message.



Figure 53-7: Example of ssrformat result if CF card not previously formatted on SSR/CHS/001/B or KAM/MEM/113



53.4 Troubleshooting and tips

53.4.1 Hot plug

Hot plug is supported. However, unplugging while recording on the KAM/MEM/113 can cause the last PCAP file to be corrupted.

53.4.2 Power loss or power off during recording

The KAM/KAM/MEM/113 has a capacitor bank that finishes writing PCAP files during a power out. However, the last PCAP file may be corrupted, which may cause new and old data to be mixed (this is due to the module not having enough time to update the FAT).

By comparing file dates you can determine old data, which can then be discarded. You can also use the SSRFormatEmpty utility to erase all data from the CF card. Contact Curtiss-Wright support (acra-support@curtisswright.com) to obtain this utility.

53.4.3 Always log

Always log is supported, however the first few PCAP files may be corrupted.

53.4.4 How to fix a corrupted PCAP file

GS Works 9 has the capability to read corrupted PCAP files.

If you open a corrupt PCAP file in Wireshark, the following screen is shown.



Figure 53-8: Example of a corrupted PCAP file loaded in Wireshark

Click OK and then use Save As to repair the file.

53.4.5 PCAP file size

Regardless of the size of the CF card, the maximum PCAP file size is 32 MB when formatted with a KAM/MEM/113 and 156 MB when formatted using ssrformat.. This is hard-coded into the FPGA and is not configurable.

53.4.6 PCAP file name

As shown in the following figure, recorded data can be read directly from the CF card on a PC with any off-the-shelf card reader.

Note: If the CF card folder is empty but you know the card has been formatted on the KAM/MEM/113, then most likely the PCAP files are hidden. See Windows Help for how to show hidden files.

Note: Some versions of Wireshark (including v 1.12) cannot repair the file using Save As. Instead you must use Export specified packets on the File menu.



ACRADISK (F:)						
File Edit View Favorites Tools Help						1
🔇 Back - 🕥 - 🏂 🔎 Search 🞼	Folders					
Address 🗣 F:\						💙 🄁 Go
Folders	×	Name 🔺	Size	Туре	Date Modified	
Desktop		🔠 0000_0000.cap	32,640 KB	Wireshark capture file	08/10/2000 20:44	
My Documents		5 0000_0001.cap	32,640 KB	Wireshark capture file	08/10/2000 20:44	
🗏 💆 My Computer		🛅 0000_0002.cap	32,640 KB	Wireshark capture file	08/10/2000 20:44	
E Second Disk (C:)		🛅 0000_0003.cap	32,640 KB	Wireshark capture file	08/10/2000 20:44	
E A DVD-RAM Drive (D:)		5 0000_0004.cap	32,640 KB	Wireshark capture file	08/10/2000 20:44	
Removable Disk (E:)		🛅 0000_0005.cap	32,640 KB	Wireshark capture file	08/10/2000 20:44	
CRADISK (E)		👫 0000_0006.cap	32,640 KB	Wireshark capture file	08/10/2000 20:44	
Removable Disk (G:)		5000_0007.cap	32,640 KB	Wireshark capture file	08/10/2000 20:45	
E Removable Disk (H)		👫 0000_0008.cap	32,640 KB	Wireshark capture file	08/10/2000 20:45	
Control Panel		50000_0009.cap	32,640 KB	Wireshark capture file	08/10/2000 20:45	
My Network Places		5000_0010.cap	32,640 KB	Wireshark capture file	08/10/2000 20:45	
Recycle Bin		a 0000_0011.cap	32,640 KB	Wireshark capture file	08/10/2000 20:45	
I C 1		🔚 0000_0012.cap	32,640 KB	Wireshark capture file	08/10/2000 20:45	
Audio		🔚 0000_0013.cap	32,640 KB	Wireshark capture file	08/10/2000 20:45	
- Hodio		5 0000 0014 cap	32 640 KB	Wireshark capture file	09/10/2000 20:46	123

Figure 53-9: CF card viewed in Windows explorer

Each filename is automatically generated by the KAM/MEM/113 during the formatting process.

Filenames have the generalized format <DATA_sss_fff.cap> where:

- ssss: is a session number (0-9999). This number increments when the KAM/MEM/113 starts using the CF card, that is, when the CF card is mounted in the KAM/MEM/113. The CF card is mounted when it is inserted in the KAM/MEM/113 or after a power-cycle.
- ffff: is a file number (0-9999). This number resets to zero on the start of a new session, that is, if 0011_0006.cap is the last file in a session, the next file is 0012_0000.cap

53.4.7 PCAP structure

For information on how data is stored in PCAP files, see TEC/NOT/051 - Ethernet frames, Wireshark® and FAT32.

53.4.8 Status and Report parameters

These parameters are important to monitor. Status indicates if the CF card is logging, how full the CF card is, if the CF card is valid, and if the CF card is present. The Report parameter indicates when events or errors occur.

53.4.9 CF card type supported

DRE/CFM/007/32GB is the only CF card which has been design verified at the time of writing. This CF card has been tested successfully at 2 megasamples per second, that is, 32 megabits per second at 85 degrees.

53.4.10 PCAP replay

GS Works can replay PCAP files recorded in the KAM/MEM/113, however, you must only select packets in the XidML file that were recorded in the KAM/MEM/113. Packets from other modules (such as Ethernet) that may be in the XidML file must not be selected.

PCAP files must be copied from the CF card to the PC for viewing. If you open a PCAP file directly from the CF card, Wireshark may write to the CF card and render it invalid for use with the KAM/MEM/113. If this occurs, you need to reformat the CF card before use in the KAD/MEM/113.

53.4.11 No date on first PCAP recorded

When recording with a KAM/MEM/113 that has the Log Condition set to Always Log, and using a KAM/TCG/105 module as the Time master, the first recorded PCAP file may not show a date in Windows Explorer.

This occurs when the KAM/TCG/105 is powered on, its time defaults to 1 January, 1970 until it seeds time from its internal RTC timer, which takes about 2 seconds. (This behavior is true for any mode GPS, IRIG, or RTC.)

As recording on the KAM/MEM/113 begins in this 2-second window prior to RTC time being seeded, the file would be dated 1 January, 1970. However, Windows Explorer considers the date invalid as it pre-dates the FAT (File Allocation Table) file system.

A way around is to trigger the KAM/MEM/113 with the DAY OF YEAR parameter when it is greater than 1, however that means the module will not record on the 1st of January.



53.4.12 Reading a CF with Windows 10

Windows 10 has a feature that creates a System Volume Information folder on external drives such as USB and SSD. This feature must be disabled when a CF card is accessed from Windows 10. Otherwise the CF card will be unreadable when used again with a KAM/MEM/113.

Contact Curtiss-Wright support (acra-support@curtisswright.com) to request the document TSD-AE-002 Prevent System Volume Information folder creation on USB in Windows 10.pdf to resolve this issue.

53.4.13 IENA timestamp and PCAP timestamp

PCAP time is the same as PTP time except that the lower 32 bits are a count of microseconds instead of nanoseconds.

IENA time is the number of microseconds since the start of the year and is based on UTC.

PTP time is ahead of UTC by PTP leap seconds which is currently 37 seconds.

53.4.14 Recording packetizers

Packetizers can only be recorded on the chassis where the KAM/MEM/113 is located.

53.4.15 KAM/MEM/113 and mode select

When a mode is changed, for example during shunt from mode 0 to mode 8, the KAM/MEM/113 resets and a new PCAP file is created. Then if you revert to mode 0 a new PCAP file is again created. This is an explicit function of the FPGA for mode/reset.



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