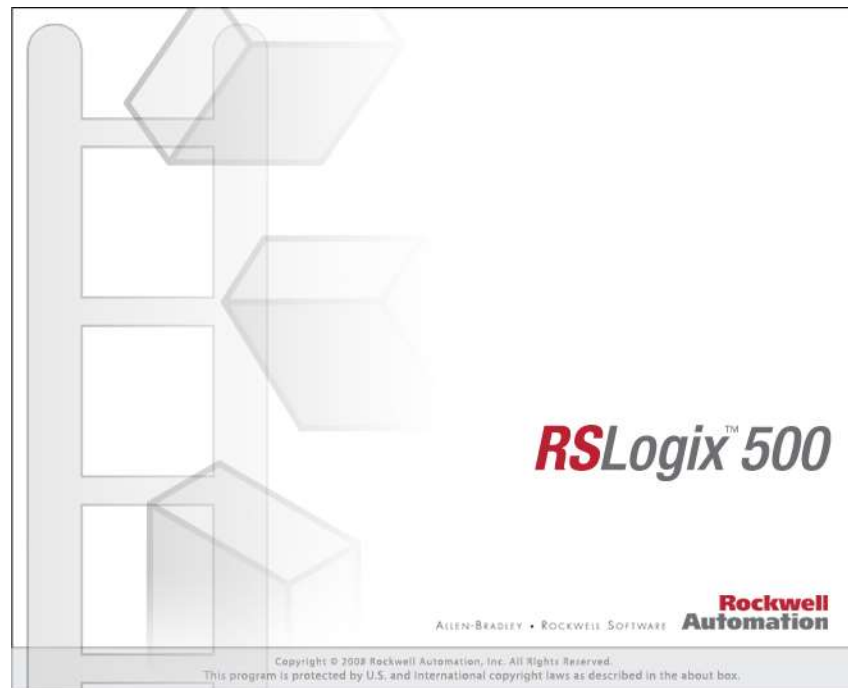


RSLogix Micro Project Report



Processor Information

Processor Type: Bul.1763 MicroLogix 1100 Series A

Processor Name: UNTITLED

Total Memory Used: 540 Instruction Words Used - 176 Data Table Words Used

Total Memory Left: 6116 Instruction Words Left

Program Files: 4

Data Files: 13

Program ID: a419

I/O Configuration

0	Bul.1763	MicroLogix 1100 Series A
1		
2		
3		
4		

Channel Configuration

CHANNEL 0 (SYSTEM) - Driver: DF1 Full Duplex

CHANNEL 0 (SYSTEM) - Driver: DF1 Full Duplex Edit Resource/Owner Timeout: 60
CHANNEL 0 (SYSTEM) - Driver: DF1 Full Duplex Passthru Link ID: 1
CHANNEL 0 (SYSTEM) - Driver: DF1 Full Duplex Write Protected: No
CHANNEL 0 (SYSTEM) - Driver: DF1 Full Duplex Comms Servicing Selection: Yes
CHANNEL 0 (SYSTEM) - Driver: DF1 Full Duplex Message Servicing Selection: Yes
CHANNEL 0 (SYSTEM) - Driver: DF1 Full Duplex 1st AWA Append Character: \d
CHANNEL 0 (SYSTEM) - Driver: DF1 Full Duplex 2nd AWA Append Character: \a

Source ID: 1 (decimal)
Baud: 19200
Parity: NONE
Control Line : No Handshaking
Error Detection: CRC
Embedded Responses: Auto Detect
Duplicate Packet Detect: Yes
ACK Timeout(x20 ms): 50
NAK Retries: 3
ENQ Retries: 3

CHANNEL 1 (SYSTEM) - Driver: Ethernet

CHANNEL 1 (SYSTEM) - Driver: Ethernet Edit Resource/Owner Timeout: 60
CHANNEL 1 (SYSTEM) - Driver: Ethernet Passthru Link ID: 1
CHANNEL 1 (SYSTEM) - Driver: Ethernet Write Protected: No
CHANNEL 1 (SYSTEM) - Driver: Ethernet Comms Servicing Selection: Yes
CHANNEL 1 (SYSTEM) - Driver: Ethernet Message Servicing Selection: Yes

Hardware Address: 00:0F:73:01:72:04
IP Address: 192.168.1.112
Subnet Mask: 255.255.255.0
Gateway Address: 192.168.1.1
Msg Connection Timeout (x 1mS): 15000
Msg Reply Timeout (x mS): 3000
Inactivity Timeout (x Min): 30
Bootp Enable: No
Dhcp Enable: No
SNMP Enable: No
HTTP Enable: Yes
Auto Negotiate Enable: Yes
Port Speed Enable: 10/100 Mbps Full Duplex/Half Duplex
Contact:
Location:

Program File List

Name	Number	Type	Rungs	Debug	Bytes
[SYSTEM]	0	SYS	0	No	0
	1	SYS	0	No	0
MAIN	2	LADDER	6	No	216
CIRC_FIFO	3	LADDER	10	No	485

Data File List

Name	Number	Type	Scope	Debug	Words	Elements	Last
OUTPUT	0	O	Global	No	12	4	O:3
INPUT	1	I	Global	No	18	6	I:5
STATUS	2	S	Global	No	0	66	S:65
BINARY	3	B	Global	No	1	1	B3:0
TIMER	4	T	Global	No	3	1	T4:0
COUNTER	5	C	Global	No	3	1	C5:0
CONTROL	6	R	Global	No	3	1	R6:0
INTEGER	7	N	Global	No	6	6	N7:5
FLOAT	8	F	Global	No	2	1	F8:0
LINE0	252	N	Global	No	32	32	N252:31
LINE 1	253	N	Global	No	32	32	N253:31
LINE 2	254	N	Global	No	32	32	N254:31
LINE3	255	N	Global	No	32	32	N255:31

Cf. <https://www.plctalk.net/qanda/showthread.php?t=131308>

Test running multiple independent FIFO arrays, implemented as circular buffers.

- Data Files N252, N253, N254, and N255 each comprise a 16-INT array plus related FIFO data; refer to [LAD 3] for more detail
- Bits 5 and 6 of the 10kHz Free-Running Clock (FRC) are used as a proxy for an actual process that generates events to trigger adding data to each FIFO
 - Bit 5 changes state every 32 counts or 3.2ms
 - The rate of events is 312.5Hz overall, and 79.125Hz per FIFO
- In this test environment, the events occur for 1s (first 10000 counts out of 65536 per FRC cycle)
- Events can be manually triggered for one cycle by assigning 1 as the value of the external trigger
 - That external trigger value will be reset to 0 at the end of the cycle
- Events can also be automatically and continuously triggered on every FRC cycle by manually assigning 1 to the automatic trigger

Rung 0000 - Copy current FRC counter value to local memory, so the value will not change throughout the scan

Rung 0001 - Generate automatic trigger, if requested

Rung 0002 - Detect start of FRC cycle

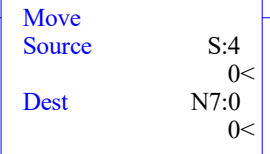
Rung 0003 - Determine run state, i.e. when to exercise FIFOs

Rung 0004 - While in running state, call subroutine (LAD 3) to exercise each FIFO

0000

FRC_COUNT

MOV



If automatic trigger is enabled, and FRC counter is between -32,768 and 30,001, latch external trigger so FIFOs will be exercised at start of next FRC counter cycle i.e. then next pass of the counter through 0

0001

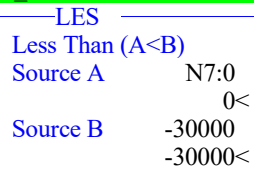
ENABLE_AUTO_TRIGGER

FRC_COUNT

EXTERNAL_TRIGGER

B3:0

2



B3:0

0

Detect start of FRC counter cycle

0002

FRC_COUNT/15

N7:0

15

FRC_RESET_ONS_MEMORY

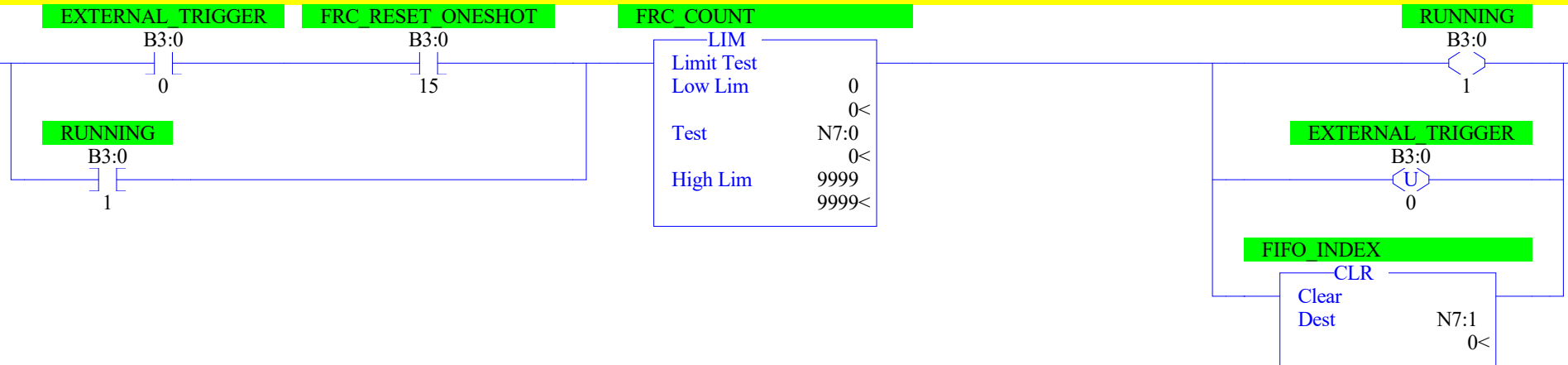
OSF



Start/Stop Pattern logic to determine when to run, and keep running, exercise of FIFO for 1s

- Start: external trigger is 1 at start of FRC cycle
- Stop: exercise has run for at least 1s (10,000 counts of FRC)
- Seal-in and Run: Running bit
- Also while running:
 - Reset external trigger to 0; seal in will maintain running state
 - Clear sort line index value to 0, in preparation for loop over four FIFOs on next rung

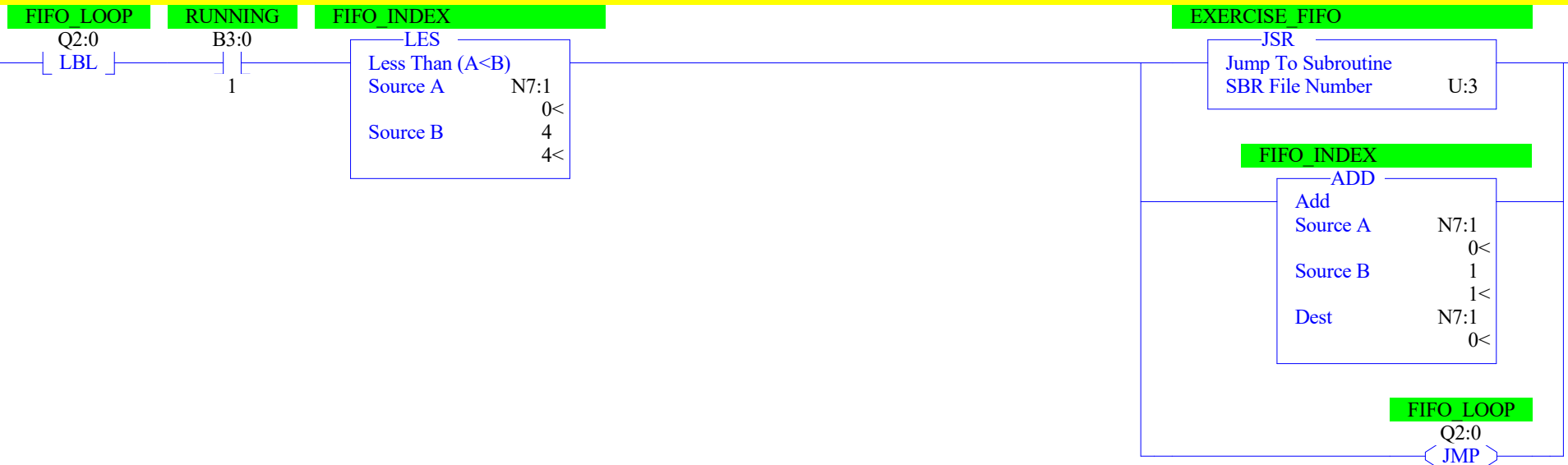
0003



One-rung loop over FIFO index values from 0 to 3 while in running state:

- Call [LAD 3] to exercise each FIFO

0004



0005

<END>

Exercise one FIFO, implemented as circular buffer

Subroutine to implement FIFO as static circular buffer with moving start and end indices

- This single routine services all four modeled FIFOs:

- Externally, the caller of this subroutine assigns the FIFO index a value in the range 0..3
- That FIFO index correspond to an INTegeR Data File number in the range 252..255

Rung 0000 - Convert FIFO index to number of Data File containing FIFO data and meta-data

Rung 0001 - Clear FIFO buffer and indices at start of FRC cycle

Rung 0002 - Detect rising edge of bits 5 (32; 3.2ms) and 6 of FRC counter matching this FIFO's index

Rung 0003 - Exit subroutine if there is no rising edge on this scan

Rung 0004 - Calculate new value to push onto FIFO

Rung 0005 - Copy head and tail indices from this FIFO's file

Rung 0006 - If circular buffer is full, then unload FIFO tail value and increment FIFO tail index

Rung 0007 - load FIFO head value and increment FIFO head index

Rung 0008 - Increment number of values added to FIFO

The four Data Files contain the FIFOS are N252, N253, N254, and N255, plus FIFO-related meta-data.

The Data Files are referred to here as N[N7:4], where N7:4 is the file number (252..255), which is the FIFO index (N7:1) with a range of 0..3 plus 252

Each file comprises

- :0..:15 - A 16-element circular buffer
- :[N7:3] - The head (new) element
- :[N7:3] - The tail (oldest) element
- :16 - The running count of items loaded into the head of the buffer
- :17 - The head index, where the next new value will be added; :17's head index value will be MOVED to N7:3, then incremented and put back into :17
- :18 - The tail index, where the oldest value is; if used, then :18's value will be MOVED to N7:2, the incremented an put back into :18
- :19 - The new value to be loaded (not used); this will be
- :20 - The oldest value that has been unloaded
- :21 - Bits used by the FIFO
- :21/0 - Memory for the one-shot
- :21/1 - The one-shot itself, which detects the first scan when the FRC count bits 5 and 6 match the FIFO number

IFILE

ADD

Add	
Source A	N7:1
	0<
Source B	252
	252<
Dest	N7:4
	252<

0000

0001

If this is the first scan of the exercise of this FIFO, fill the FIFO and its meta-data with zeros

FRC_RESET_ONESHOT

B3:0

15

#CIRCULAR_BUFFER

FLL

Fill File

Source

0

Dest

#N[N7:4]:0

Length

32

0002

If bits 0 and 1 of the FIFO index, with range 0..3, match bits 5 and 6 of the FRC clock count, then the current FRC count applies to this FIFO, which will be indicated by the one-shot

FRC COUNT BIT 5

N7:0

5

FIFO INDEX LOW BIT

N7:1

0

FRC COUNT BIT 6

N7:0

6

FIFO INDEX HIGH BIT

N7:1

1

FRC COUNT BIT 5

N7:0

5

FIFO INDEX LOW BIT

N7:1

0

FRC COUNT BIT 6

N7:0

6

FIFO INDEX HIGH BIT

N7:1

1

FIFO_ONESHOT_MEMORY

N[N7:4]:21

0

FIFO_ONESHOT

N[N7:4]:21

1

FIFO_ONESHOT_MEMORY

N[N7:4]:21

0

Exit this subroutine if the current FRC count has already matched the FIFO index once

FIFO_ONESHOT

N[N7:4]:21

1

RET

Return

0003

0004

Extract the least-significant four bits of the FRC count as the new value to add to the head of the FIFO

NEWVAL

AND

Bitwise AND	
Source A	N7:0 0000h<
Source B	15 15<
Dest	N7:5 0000h<

0005

MOVE the FIFO head and tail indices to the N7 Data File
- This eliminates warnings when verifying later rungs

IHEAD

MOV

Move	
Source	N[N7:4]:17 0<
Dest	N7:2 0<

ITAIL

MOV

Move	
Source	N[N7:4]:18 0<
Dest	N7:3 0<

If the tail index overlaps the head index, then
 - unload the oldest value from the FIFO tail index location
 - and increment the FIFO tail index location

0006

FIFO_COUNT

IHEAD

FIFO_OLDVAL

GRT

Greater Than (A>B)

Source A N[N7:4]:16

0<

Source B

0<

EQU

Equal

Source A N7:2

0<

Source B

N7:3

0<

MOV

Move

Source N[N7:4]:[N7:3]

0<

Dest

N[N7:4]:20

0<

ITAIL

ADD

Add

Source A N7:3

0<

Source B

1

1<

Dest

N7:3

0<

FIFO_TAIL

AND

Bitwise AND

Source A N7:3

0000h<

Source B

15

15<

Dest

N[N7:4]:18

0000h<

Load the new value into the FIFO head index location, and increment the FIFO head index

FIFO_HEAD_ELEMENT

MOV

Move
Source N7:5
0<
Dest N[N7:4]:[N7:2]
0<

IHEAD

ADD

Add
Source A N7:2
0<
Source B 1
1<
Dest N7:2
0<

FIFO_HEAD

AND

Bitwise AND
Source A N7:2
0000h<
Source B 15
15<
Dest N[N7:4]:17
0000h<

Increment the count of values loaded into this FIFO
- The count is not decremented for values unloaded from this FIFO

FIFO_COUNT

ADD

Add
Source A N[N7:4]:16
0<
Source B 1
1<
Dest N[N7:4]:16
0<

<END>

Offset	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0					
O:0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1763	MicroLogix	1100	Series A	
O:0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1763	MicroLogix	1100	Series A	
O:0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1763	MicroLogix	1100	Series A	
O:0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1763	MicroLogix	1100	Series A	

Offset	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
I:0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1763 MicroLogix 1100 Series A
I:0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1763 MicroLogix 1100 Series A
I:0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1763 MicroLogix 1100 Series A
I:0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1763 MicroLogix 1100 Series A
I:0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	Bul.1763 MicroLogix 1100 Series A-Analog Inp 0
I:0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	Bul.1763 MicroLogix 1100 Series A-Analog Inp 1

Main

Processor Mode S:1/0 - S:1/4 = Remote Run
On Power up Go To Run (Mode Behavior) S:1/12 = 0
First Pass S:1/15 = No
Free Running Clock S:4 = 0000-0000-0000-0000

Proc

OS Catalog Number S:57 = 1100 User Program Type S:63 = 8001h
OS Series S:58 = B Compiler Revision Number S:64 =
OS FRS S:59 =
Processor Catalog Number S:60 =
Processor Series S:61 = A
Processor FRN S:62 =

Scan Times

Maximum (x10 ms) S:22 = 26
Watchdog (x10 ms) S:3 (high byte) = 10
Last 100 uSec Scan Time S:35 = 7
Scan Toggle Bit S:33/9 = 0

Math

Math Overflow Selected S:2/14 = 1 Math Register (lo word) S:13 = 0
Overflow Trap S:5/0 = 0 Math Register (high word) S:14-S:13 = 0
Carry S:0/0 = 0 Math Register (32 Bit) S:14-S:13 = 0
Overflow S:0/1 = 0
Zero Bit S:0/2 = 1
Sign Bit S:0/3 = 0

Chan 0

Processor Mode S:1/0- S:1/4 = Remote Run
Node Address S:15 (low byte) = 0 Outgoing Msg Cmd Pending S:33/2 = 0
Baud Rate S:15 (high byte) = ?
Channel Mode S:33/3 = 0
Comms Active S:33/4 = 0
Incoming Cmd Pending S:33/0 = 0
Msg Reply Pending S:33/1 = 0

Debug

Suspend Code S:7 = 0
Suspend File S:8 = 0

Errors

Fault Override At Power Up S:1/8 = 0 Fault Routine S:29 = 0
Startup Protection Fault S:1/9 = 0 Major Error S:6 = 0h
Major Error Halt S:1/13 = 0
Overflow Trap S:5/0 = 0 Error Description:
Control Register Error S:5/2 = 0
Major Error Executing User Fault Rtn. S:5/3 = 0
Battery Low S:5/11 = 0
Input Filter Selection Modified S:5/13 = 0
ASCII String Manipulation error S:5/15 = 0

Protection

Deny Future Access S:1/14 = No
Data File Overwrite Protection Lost S:36/10 = True

Mem Module

Memory Module Loaded On Boot S:5/8 = 0
Password Mismatch S:5/9 = 0
Load Memory Module On Memory Error S:1/10 = 0
Load Memory Module Always S:1/11 = 0
On Power up Go To Run (Mode Behavior) S:1/12 = 0
Program Compare S:2/9 = 0
Data File Overwrite Protection Lost S:36/10 = 1

Forces

Forces Enabled S:1/5 = Yes
Forces Installed S:1/6 = No

Data File B3 (bin) -- BINARY

Offset	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	(Symbol)	Description
B3:0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

Offset	EN	TT	DN	BASE	PRE	ACC	(Symbol)	Description
T4:0	0	0	0	.001 sec	0	0		

Data File C5 -- COUNTER

Offset	CU	CD	DN	OV	UN	UA	PRE	ACC	(Symbol)	Description
C5:0	0	0	0	0	0	0	0	0		

Offset	EN	EU	DN	EM	ER	UL	IN	FD	LEN	POS	(Symbol)	Description
R6:0	0	0	0	1	0	0	0	0	128	0		

Data File N7 (dec) -- INTEGER

Offset	0	1	2	3	4	5	6	7	8	9
N7:0	0	0	0	0	252	0				

Data File F8 -- FLOAT

Offset	0	1	2	3	4
F8:0	0				

Data File N252 (dec) -- LINE0

Offset	0	1	2	3	4	5	6	7	8	9
N252:0	0	0	0	0	0	0	0	0	0	0
N252:10	0	0	0	0	0	0	0	0	0	0
N252:20	0	0	0	0	0	0	0	0	0	0
N252:30	0	0								

Data File N253 (dec) -- LINE 1

Offset	0	1	2	3	4	5	6	7	8	9
N253:0	0	0	0	0	0	0	0	0	0	0
N253:10	0	0	0	0	0	0	0	0	0	0
N253:20	0	0	0	0	0	0	0	0	0	0
N253:30	0	0								

Offset	0	1	2	3	4	5	6	7	8	9
N254:0	0	0	0	0	0	0	0	0	0	0
N254:10	0	0	0	0	0	0	0	0	0	0
N254:20	0	0	0	0	0	0	0	0	0	0
N254:30	0	0								

Data File N255 (dec) -- LINE3

Offset	0	1	2	3	4	5	6	7	8	9
N255:0	0	0	0	0	0	0	0	0	0	0
N255:10	0	0	0	0	0	0	0	0	0	0
N255:20	0	0	0	0	0	0	0	0	0	0
N255:30	0	0								

Address/Symbol Database

Address	Symbol	Scope	Description	Sym Group	Dev. Code	ABV	BLW
B3:0/0	EXTERNAL_TRIGGER	Global					
B3:0/1	RUNNING	Global					
B3:0/2	ENABLE_AUTO_TRIGGER	Global					
B3:0/14	FRC_RESET_ONS_MEMORY	Global					
B3:0/15	FRC_RESET_ONESHOT	Global					
C5:0.ACC	IDS_INTERVAL_COUNT	Global					
N7:0	FRC_COUNT	Global					
N7:0/5	FRC_COUNT_BIT_5	Global					
N7:0/6	FRC_COUNT_BIT_6	Global					
N7:1	FIFO_INDEX	Global					
N7:1/0	FIFO_INDEX_LOW_BIT	Global					
N7:1/1	FIFO_INDEX_HIGH_BIT	Global					
N7:2	IHEAD	Global					
N7:3	ITAIL	Global					
N7:4	IFILE	Global					
N7:5	NEWVAL	Global					
N[N7:4]:0	CIRCULAR_BUFFER	Global					
N[N7:4]:16	FIFO_COUNT	Global					
N[N7:4]:17	FIFO_HEAD	Global					
N[N7:4]:18	FIFO_TAIL	Global					
N[N7:4]:19	FIFO_NEWVAL	Global					
N[N7:4]:20	FIFO_OLDVAL	Global					
N[N7:4]:21	FIFO_BITS	Global					
N[N7:4]:21/0	FIFO_ONESHOT_MEMORY	Global					
N[N7:4]:21/1	FIFO_ONESHOT	Global					
N[N7:4]:[N7:2]	FIFO_HEAD_ELEMENT	Global					
N[N7:4]:[N7:3]	FIFO_TAIL_ELEMENT	Global					
Q2:0	FIFO_LOOP	Global					
S:0			Arithmetic Flags				
S:0/0			Processor Arithmetic Carry Flag				
S:0/1			Processor Arithmetic Underflow/ Overflow Flag				
S:0/2			Processor Arithmetic Zero Flag				
S:0/3			Processor Arithmetic Sign Flag				
S:1			Processor Mode Status/ Control				
S:1/0			Processor Mode Bit 0				
S:1/1			Processor Mode Bit 1				
S:1/2			Processor Mode Bit 2				
S:1/3			Processor Mode Bit 3				
S:1/4			Processor Mode Bit 4				
S:1/5			Forces Enabled				
S:1/6			Forces Present				
S:1/7			Comms Active				
S:1/8			Fault Override at Powerup				
S:1/9			Startup Protection Fault				
S:1/10			Load Memory Module on Memory Error				
S:1/11			Load Memory Module Always				
S:1/12			Load Memory Module and RUN				
S:1/13			Major Error Halted				
S:1/14			Access Denied				
S:1/15			First Pass				
S:2/0			STI Pending				
S:2/1			STI Enabled				
S:2/2			STI Executing				
S:2/3			Index Addressing File Range				
S:2/4			Saved with Debug Single Step				
S:2/5			DH-485 Incoming Command Pending				
S:2/6			DH-485 Message Reply Pending				
S:2/7			DH-485 Outgoing Message Command Pending				
S:2/15			Comms Servicing Selection				
S:3			Current Scan Time/ Watchdog Scan Time				
S:4			Time Base				
S:5/0			Overflow Trap				
S:5/2			Control Register Error				

Address/Symbol Database

Address	Symbol	Scope	Description	Sym Group	Dev. Code	ABV	BLW
S:5/3			Major Err Detected Executing UserFault Routine				
S:5/4			M0-M1 Referenced on Disabled Slot				
S:5/8			Memory Module Boot				
S:5/9			Memory Module Password Mismatch				
S:5/10			STI Overflow				
S:5/11			Battery Low				
S:6			Major Error Fault Code				
S:7			Suspend Code				
S:8			Suspend File				
S:9			Active Nodes				
S:10			Active Nodes				
S:11			I/O Slot Enables				
S:12			I/O Slot Enables				
S:13			Math Register				
S:14			Math Register				
S:15			Node Address/ Baud Rate				
S:16			Debug Single Step Rung				
S:17			Debug Single Step File				
S:18			Debug Single Step Breakpoint Rung				
S:19			Debug Single Step Breakpoint File				
S:20			Debug Fault/ Powerdown Rung				
S:21			Debug Fault/ Powerdown File				
S:22			Maximum Observed Scan Time				
S:23			Average Scan Time				
S:24			Index Register				
S:25			I/O Interrupt Pending				
S:26			I/O Interrupt Pending				
S:27			I/O Interrupt Enabled				
S:28			I/O Interrupt Enabled				
S:29			User Fault Routine File Number				
S:30			STI Setpoint				
S:31			STI File Number				
S:32			I/O Interrupt Executing				
S:33			Extended Proc Status Control Word				
S:33/0			Incoming Command Pending				
S:33/1			Message Reply Pending				
S:33/2			Outgoing Message Command Pending				
S:33/3			Selection Status User/DF1				
S:33/4			Communicat Active				
S:33/5			Communicat Servicing Selection				
S:33/6			Message Servicing Selection Channel 0				
S:33/7			Message Servicing Selection Channel 1				
S:33/8			Interrupt Latency Control Flag				
S:33/9			Scan Toggle Flag				
S:33/10			Discrete Input Interrupt Reconfigur Flag				
S:33/11			Online Edit Status				
S:33/12			Online Edit Status				
S:33/13			Scan Time Timebase Selection				
S:33/14			DTR Control Bit				
S:33/15			DTR Force Bit				
S:34			Pass-thru Disabled				
S:34/0			Pass-Thru Disabled Flag				
S:34/1			DH+ Active Node Table Enable Flag				
S:34/2			Floating Point Math Flag Disable,F1				
S:35			Last 1 ms Scan Time				
S:36			Extended Minor Error Bits				
S:36/8			DII Lost				
S:36/9			STI Lost				
S:36/10			Memory Module Data File Overwrite Protection				
S:37			Clock Calendar Year				
S:38			Clock Calendar Month				
S:39			Clock Calendar Day				
S:40			Clock Calendar Hours				

Address/Symbol Database

Address	Symbol	Scope	Description	Sym Group	Dev. Code	ABV	BLW
S:41			Clock Calendar Minutes				
S:42			Clock Calendar Seconds				
S:43			STI Interrupt Time				
S:44			I/O Event Interrupt Time				
S:45			DII Interrupt Time				
S:46			Discrete Input Interrupt- File Number				
S:47			Discrete Input Interrupt- Slot Number				
S:48			Discrete Input Interrupt- Bit Mask				
S:49			Discrete Input Interrupt- Compare Value				
S:50			Processor Catalog Number				
S:51			Discrete Input Interrupt- Return Number				
S:52			Discrete Input Interrupt- Accumulat				
S:53			Reserved/ Clock Calendar Day of the Week				
S:55			Last DII Scan Time				
S:56			Maximum Observed DII Scan Time				
S:57			Operating System Catalog Number				
S:58			Operating System Series				
S:59			Operating System FRN				
S:61			Processor Series				
S:62			Processor Revision				
S:63			User Program Type				
S:64			User Program Functional Index				
S:65			User RAM Size				
S:66			Flash EEPROM Size				
S:67			Channel 0 Active Nodes				
S:68			Channel 0 Active Nodes				
S:69			Channel 0 Active Nodes				
S:70			Channel 0 Active Nodes				
S:71			Channel 0 Active Nodes				
S:72			Channel 0 Active Nodes				
S:73			Channel 0 Active Nodes				
S:74			Channel 0 Active Nodes				
S:75			Channel 0 Active Nodes				
S:76			Channel 0 Active Nodes				
S:77			Channel 0 Active Nodes				
S:78			Channel 0 Active Nodes				
S:79			Channel 0 Active Nodes				
S:80			Channel 0 Active Nodes				
S:81			Channel 0 Active Nodes				
S:82			Channel 0 Active Nodes				
S:83			DH+ Active Nodes				
S:84			DH+ Active Nodes				
S:85			DH+ Active Nodes				
S:86			DH+ Active Nodes				
U:3	EXERCISE_FIFO	Global					

Instruction Comment Database

Address	Instruction	Description
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Symbol Group Database

Group_Name	Description
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