

# **TMCDAQ Program Manual**

(for 9U TMC-VME)

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## **1. Intriduction**

TMCDAQ is a data acquisition program which reads TMC data and convert to the real timing data and stores them to the Dual Port Memory (DPM) for the readout from VME bus.

## Address Map (VME Space)

DSP Addr	VME Addr	15	Upper byte	8	7	addr. symbol
		Lower byte		0		
\$4000	x+0	Run Control Area				DPM
:	:					
\$4003	x+6	Data Buffer Area				DPMDAT
\$4004	x+8					
:	:	DAQ Parameter Area				DPMPAR
\$5F80	x+3F00					
\$5FF7	x+3FEE	DPM IRQ Vectors				DPMIRQ
\$5FF8	x+ 3FF0					
\$5FFF	x+3FFE	^ (not used)				DPME
	x+4000					
	x+FEFE	V				VCSR
\$FFF2	x+FF00					
	x+FFEE	V				ICR
	x+FFF0					
	x+FFF2	Interrupt Control Register				CVR
	x+FFF4					
	x+FFF6	Interrupt Status Register				IVR
	( Host Port )					
	x+FFF8	-				RXH/TXH
	x+FFFA					
	x+FFFC	Rx/Tx Byte Register M				RXM/TXM
	x+FFFE					
		Rx/Tx Byte Register L				RXL/TXL

x = 0, \$10000, \$20000, ..., \$FF0000 (upper 8 bit base address is switch selectable)

DPM Data Format

DSP Addr.	VME Addr.	15	Contents	symbol
			0	
\$4000	x+0		Data Ready Flag	dredy
\$4001..F	x+2..\$1E		(reserved)	
\$4010	x+\$20		Total No. of Word	ntotal
\$4011	x+\$22		Status	status
\$4012	x+\$24		Start/Stop Time	t0
\$4013	x+\$26		T0 RP value	t0rp
\$4014	x+\$28		Ch No.	
\$4015	x+\$2A		data	
\$4016	x+\$2C		Ch No.	
\$4017	x+\$2E		data	
:	:		:	
:	:		Ch No.	
:	:		data	
\$4010+ntotal	x+\$20+ntotal*2		End of Data (\$5555)	
:	:		:	
:	:		:	
\$5F80	x+\$3F00		RUN Flag	drun
\$5F81	x+\$3F02		Common Start/stop	dstsp
\$5F82	x+\$3F04		Recording Depth	dcount
\$5F83	x+\$3F06		Serial I/F Display Flag	ddisp
\$5F84	x+\$3F08		Subtract Offset Flag	dsuboff
\$5F85..7	x+\$3F0A..E		(reserved)	
\$5F88	x+\$3F10		Ch 0 Offset	doffset
\$5F89	x+\$3F12		Ch 1 Offset	
:	:		:	
\$5FC7	x+\$3F8E		Ch 63 Offset	
			:	
			:	
\$5FF8	x+ 3FF0		IRQ1 Vector	
:	x+3FF2		IRQ2 Vector	
:	:		:	
\$5FFF	x+3FFE		IRQ7 Vector	

## [ Comments on parameters in the data format]

dready: Data ready flag.

- [DSP view] =0 data buffer is empty. ready to accept start/stop signal.  
=1 data exist. wait until dready=0.
- [VME view] =0 no data in the buffer. wait until dready=1.  
=1 data exists. ready to read.

ntotal: Total No. of word(16 bit word)

status: Status

- bit0 = There is no recording of common start/stop signal.
- bit1 = There is no recording in FIFO's in common stop mode.

t0: Common start/stop time

t0rp: Read pointer value

- [common start mode] RP value at start
- [common stop mode] RP value at stop.

drun: DAQ run flag

- =0 VME master is not ready.
- =1 VME master is ready. Following parameters are effective.

dcstsp: Common Start/stop mode

- =0 common stop mode
- =1 common start mode

dcount: Time range count

Recording Time = 32 ns x Dcount

ddisp: Display data flag

- = N (0-63) display Ch N data to terminal
- = 99 display all channel data
- = 100 don't display data

dsuboff: Subtract offset flag

- = 0 Subtract default value,
- = 1 no offset subtraction,
- = 2 subtract offset value stored in the offset area.

doffset: channel offset values

These offset are subtract from data of each channels.

DPM Data Format 2

DSP Addr.	VME Addr.	15	Contents	
			0	
\$2000	x+0		Data Ready Flag	DREDY
\$2001	x+2		(reserved)	
\$2002	x+4		(reserved)	
\$2003	x+6		(reserved)	
\$2004	x+8		Total No. of Byte (ntotal)	NTOTAL
\$2005	x+10		Status	STATUS
\$2006	x+12		T0-data	T0
\$2008	x+14		T0-RP	T0RP
\$2009	x+\$10		Ch0 No. of Byte (n0)	
			Ch1 No. of Byte (n1)	
			:	
\$2042	x+\$84		Ch63 No. of Byte (n63)	
\$2043	x+\$86		Ch 0 Data	
			:	
\$2043+n0x2	x+\$86+n0		Ch 1 Data	
			:	
	x+\$86+n0+.. +n62		Ch 63 data	
			:	
	x+\$86+n0+... +n63 =x+ntotal		End of Data (\$5555)	