

TAPS-8 Operating Program Logic
12/01/2009

COLD START

Initialize parms from EEPROM
Check clock is running -- start it if it isn't
 Compare external RTC to ram-clock and reset if needed
Wait one minute (minimum) for inputs
 Service inputs if found; reset one minute timer
Go to sleep (and notify outside world)

NORMAL OPS

Timer pops and time = time for next data?
Read RTC in low-mem RAM and store data
Update external RTC
Power up the boards
Set the first frequency
Small-volume Sv loop:
 Loop on NPINGS1
 Loop on 8 FREQS
 Set freq
 Set post-IF gain
 Point at proper TVG table start & set TVG
 Call TR
 Call MOVE-SV-DATA to move part of echo to RAM
 END
 END
Large-volume Sv loop:
 Loop on NPINGS2
 Loop on 4 FREQS
 Set freq
 Set post-IF gain
 Point at proper TVG table start & set TVG
 Call TR
 Call MOVE-LV-DATA
 END
 END

Power off to boards
Process the small-volume Sv data
 ΣI and ΣI^2
Move to NVRAM
Process the large-volume Sv data
 ΣA , ΣI , ΣI^2 in range bins
Move to NVRAM
Go to sleep

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INPUT SERVICE

- STATUS** - display all current settings, memory status, time/date.
PROGRAM - set operating parms: npings, time between samples, time to start data collection, etc. Store in EEPROM if OK.
SET-CLOCK - set the time/date on RTC.
SHOW-CLOCK - show the time and date.
DUMP - dump data from NVRAM to host computer in fixed-length chunks of ASCII-HEX lines followed by <CR>. Pause after each NVRAM is dumped to allow changing the capture file name.
ERASE - reset the NVRAM pointers to zero.
CLEAR - *clear NVRAM by writing zeros.*
MEMTEST - test NVRAM by writing/reading data at regular intervals.
RUN - set TAPS to operating mode. Enable RTC interrupts. TAPS powers up in RUN mode.
PAUSE - set TAPS to response mode. Disable RTC interrupts. Used when TAPS is full of data to setup for dumping data, reprogramming, etc.
TEST - enter test mode, show test menu. Disable RTC interrupts.
? - show list of commands

KEY	Function
S	Display STATUS screen
CTRL-P	Enter PROGRAM mode
D	DUMP data from data RAM
E	ERASE data RAM (zero pointers)
C	CLEAR data RAM (zero memory)
M	Test MEMORY (destructive test)
R	RUN - set TAPS to operating mode
P	PAUSE - set TAPS to response mode
T	TEST - set TAPS to test mode
CTRL-S	SET date/time
CTRL-T	Display TIME and date
?	Display list of TAPS-8 commands

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THINGS still to do:

Finish data processing code and test

NVRAM code

RTC code

Minute interrupts work ok

Use ram-clock to reset external clock? Or just save ram-clk time?