

# 21X PROMPT SHEET

## (OSX-0.1, -1.1, -2.1 PROMs)

This prompt sheet briefly describes the 21X instruction set and command structure. It is intended for field use or as a reference by those familiar with 21X programming; more detailed information and examples are available in the 21X Operator's manual. Computer-assisted programming and communications are supported by PC208 or PC208W Software.

### \*MODES

To enter each Mode, key in a \* ("star"), followed by the desired mode number.

#### KEY DEFINITION SUMMARY

Common keystrokes used to interrogate and program the 21X via the keyboard/display or a remote terminal.

- |  |  |
|--|--|
| <p><b>[0]-[9]</b> Key in numeric data, instruction number, or parameter</p> <p><b>[A]</b> Enter the displayed number, or advance through a program table or data storage</p> <p><b>[B]</b> Back up through a program table or data storage</p> | <p><b>[C]</b> Change the sign of a floating point number, or index an input location</p> <p><b>[D]</b> Enter a decimal point</p> <p><b>[#]</b> Clear digit just keyed; display storage location number</p> |
|--|--|

**\* [0] Compile program, begin LOGging data, indicate Active Table(s)**

**\* [1] Display/Enter Program Instructions**

01:xx Advance to a given instruction location

01:x.xxxx Execution Interval:

Valid entries are multiples of for Range of

0.0125 s. . . . 0.0125 to 0.1 s.  
(Table 1 only)

0.1 s. . . . 0.1 to 6553 s.

01:Pxx Program Instruction (see following pages)

**\* [2] Display/Enter Program Instructions**  
Same structure as \*1. Allows use of a different Execution Interval.

**\* [3] Display/Change Subroutine Program**  
Same as for \*1 and \*2, except that \*3 does not have an Execution Interval

- \*1,\*2, and \*3 Commands*
- |   |   |                                 |
|---|---|---------------------------------|
| # | A | Advance to next instruction     |
| # | B | Back up to previous instruction |
| # | D | Delete entire instruction       |

**\* [4] Enable Final Storage Output to Peripheral Device (do not use if Instruction 96 is in program)**

01:AB Output Enable Code

A Tape  
0 = disabled; 1 = enabled

B Printer  
0 = disabled; 1 = enabled

02:0y Baud Rate Code (printer)

|   |            |
|---|------------|
| 0 | 300 baud   |
| 1 | 1200 baud  |
| 2 | 9600 baud  |
| 3 | 76800 baud |

**\* [5] Display/Change Datalogger Time**

:HH:MM:SS (displays current datalogger time)

05:xx Year

05:xxxx Day of Year (calendar on back)

05:HHMM Hours Minutes

**\* [6] Display/Change Input Storage Data Values, Flags, or Ports. Compile Program without resetting Input Storage, Flags, or Ports**

06:xxxx Input Storage Location to advance to

- \*6 Commands*
- |   |   |
|---|---|
| # | Display Input Location Number or enter location to advance to |
| C | Enter value in Input Location                                 |
| D | Display flags 1-8, toggle flag w/keys 1-8                     |
| 0 | Display ports 6-1, toggle port w/keys 1-6                     |

**\* [7] Display Final Storage Data**

07:xxxxx DSP location or enter location to advance to

- \*7 Commands*
- |   |   |  |
|---|---|--|
| # | Display Final Storage location number; enter location to advance to, or C to display data |  |
| # | A   | Advance to same element in next array w/same ID      |
| # | B   | Back up to same element in previous array w/ same ID |

**\* [8] Manual Data Dump to Tape**

01:xxxxx TPTR location/start of dump

02:xxxxx DSP location/end of dump

03:xx Enter any number to start dump  
(# Aborts dump)

**\* [9] Manual Dump to Printer or Storage Module**

09:xx Enter Output Code

|    |                          |
|----|--------------------------|
| 1y | Printable ASCII          |
| 2y | Final Storage Format     |
| 30 | SM192/716 Storage Module |
| 31 | Filemark to SM192/716    |

01:xxxxx PPTR location/start of dump

02:xxxxx DSP location/end of dump

03:xx Enter any number to start dump

**\* [A] Display/Change Memory Allocation**

01:xxxx Input Storage locations

02:xxxx Intermediate Storage locations

03:xxxxx Final Storage locations

04:xxxx Remaining program memory (bytes)

**\* [B] Display Signatures/Status**

01:xxxxx Program signature

02:xxxxx First PROM signature

03:xxxxx Second PROM signature

04:xxxxx Third PROM signature

05:xxxx Memory Test

06:xx Number of E08 Errors

07:xx Number of Overrun Errors

08:xxxx.x Version number

09:xxxx Revision number

**\* [C] Display/Change Security (OSX-0.1 only)**

12:0000 (if enabled) Enter password

01:xx

00 Temporarily disable security

01 Advance to window 2 to set new password

02:xxxx Set password, 0000 disables security if window 1 is set to 0

**\* [D] Store/Load Program**

13:xx Enter Command  
(Commands 1 and 2 require baud rate code. See \*4 mode)

1 – Print program (ASCII)

2 – Load program (ASCII)

71 – Store/Load/Clear program from Storage Module

Storage Module Command Codes

1z Store program z in Storage Module

2z Load program z from Storage Module

3z Clear program z from Storage Module

z = program 1-8

**NOTE:** x represents a digit from 0 to 9 unless otherwise defined

# 21X INSTRUCTIONS AND PARAMETERS

## INPUT/OUTPUT INSTRUCTIONS

| INST. | 01:                      | 02:                  | 03:          | 04:             | 05:         | 06:                 | 07:      | 08:    | 09:    |        |
|-------|--------------------------|----------------------|--------------|-----------------|-------------|---------------------|----------|--------|--------|--------|
| 1     | VOLT (SE)                | REPS                 | RANGE†       | SE CHAN         | LOC         | MULT                | OFFSET   |        |        |        |
| 2     | VOLT (DIFF)              | REPS                 | RANGE†       | DIFF CHAN       | LOC         | MULT                | OFFSET   |        |        |        |
| 3     | PULSE                    | REPS                 | PULSE CHAN   | CONFIG†         | LOC         | MULT                | OFFSET   |        |        |        |
| 4     | EXCIT-DEL-SE             | REPS                 | RANGE†       | SE CHAN         | EXCIT CHAN† | DELAY 0.01s         | EXCIT mV | LOC    | MULT   | OFFSET |
| 5     | AC HALF BR               | REPS                 | RANGE†       | SE CHAN         | EXCIT CHAN† | EXCIT mV            | LOC      | MULT   | OFFSET |        |
| 6     | FULL BR                  | REPS                 | RANGE†       | DIFF CHAN       | EXCIT CHAN† | EXCIT mV            | LOC      | MULT   | OFFSET |        |
| 7     | 3W HALF BR               | REPS                 | RANGE†       | SE CHAN         | EXCIT CHAN† | EXCIT mV            | LOC      | MULT   | OFFSET |        |
| 8     | EXCIT-DEL-DIFF           | REPS                 | RANGE†       | DIFF CHAN       | EXCIT CHAN† | DELAY 0.01s         | EXCIT mV | LOC    | MULT   | OFFSET |
| 9     | FULL BR w/<br>MEAS EXCIT | REPS                 | EXCIT RANGE† | BR RANGE†       | DIFF CHAN   | EXCIT CHAN†         | EXCIT mV | LOC    | MULT   | OFFSET |
| 10    | BATT VOLT                | LOC                  |              |                 |             |                     |          |        |        |        |
| 11    | TEMP-(107)               | REPS                 | SE CHAN      | EXCIT CHAN†     | LOC         | MULT                | OFFSET   |        |        |        |
| 12    | RH (207)                 | REPS                 | SE CHAN      | EXCIT CHAN†     | TEMP LOC    | RH LOC              | MULT     | OFFSET |        |        |
| 13    | TEMP-TC (SE)             | REPS                 | RANGE†       | SE CHAN         | TC TYPE†    | REF LOC             | LOC      | MULT   | OFFSET |        |
| 14    | TEMP-TC (DIFF)           | REPS                 | RANGE†       | DIFF CHAN       | TC TYPE†    | REF LOC             | LOC      | MULT   | OFFSET |        |
| 16    | TEMP-RTD                 | REPS                 | R/Ro LOC     | LOC             | MULT        | OFFSET              |          |        |        |        |
| 17    | TEMP-PANEL               | LOC                  |              |                 |             |                     |          |        |        |        |
| 18    | TIME                     | OPTION†              | MOD/BY       | LOC             |             |                     |          |        |        |        |
| 19    | SIGNATURE                | LOC                  |              |                 |             |                     |          |        |        |        |
| 20    | PORT SET                 | OPTION†              | PORT NO      |                 |             |                     |          |        |        |        |
| 21    | ANALOG OUT               | CAO CHAN             | mV LOC       |                 |             |                     |          |        |        |        |
| 22    | EXCIT-DEL                | EXCIT CHAN           | DEL w/ excit | DEL after excit | EXCIT mV    | (delay units-0.01s) |          |        |        |        |
| ‡23   | see below                |                      |              |                 |             |                     |          |        |        |        |
| 26    | TIMER                    | LOC (0 resets timer) |              |                 |             |                     |          |        |        |        |
| *§101 | SDM-INT8                 | ADDR                 | C:8765†      | C:4321†         | F:8765†     | F:4321†             | OUT OPT† | LOC    | MULT   | OFFSET |
| *§102 | SDM-SW8A                 | REPS                 | ADDR         | FUNCTION†       | CHAN        | LOC                 | MULT     | OFFSET |        |        |
| *§103 | SDM-AO4                  | REPS                 | ADDR         | LOC             |             |                     |          |        |        |        |
| *§104 | SDM-CD16                 | REPS                 | ADDR         | LOC             |             |                     |          |        |        |        |

| INST. | 01:        | 02:     | 03:    | 04:     | 05:     | 06:      | 07:                      | 08:    | 09:       | 10:      | 11: | 12:  |        |
|-------|------------|---------|--------|---------|---------|----------|--------------------------|--------|-----------|----------|-----|------|--------|
| ‡23   | BURST MODE | NO CHAN | RANGE† | IN CHAN | OPTION† | SCAN(ms) | SCANS (10 <sup>3</sup> ) | TR OFF | TR LIM mV | EXCIT mV | LOC | MULT | OFFSET |

### †Option Codes

|              |           |  |            |  |
|--------------|-----------|--|------------|--|
| <b>INST.</b> | <b>20</b> | <b>OPTION code:</b>  | <b>101</b> | <b>C:8765, C:4321 Each digit Configures respective channel:</b>        |
| <b>1-14</b>  |           | 00 Set low   |            | 0 High level, rising edge  |
|              |           | 01 Set high  |            | 1 High level, falling edge   |
|              |           | 1x Set according to flag x   |            | 2 Low level, rising edge   |
|              |           | 2x Set opposite flag x   |            | 3 Low level, falling edge  |
|              | <b>23</b> | <b>RANGE codes:</b>  | <b>101</b> | <b>F:8765, F:4321 Each digit sets Function for respective channel:</b> |
|              |           | (250 µs integ time)  |            | 0 No value returned  |
|              |           | Full scale range   |            | 1 Period, ms   |
|              |           | 12 ± 15 mV   |            | 2 Frequency, kHz   |
|              |           | 13 ± 50 mV   |            | 3 Time since previous channel, ms                                      |
|              |           | 14 ± 500 mV  |            | 4 Time since channel 1, ms   |
|              |           | 15 ± 5000 mV   |            | 5 Counts on 2 since 1, interpolated                                    |
|              | <b>23</b> | <b>OPTION code, 4 digits:</b>  |            | 6 Low resolution frequency, kHz  |
|              |           | ABCD   |            | 7 Counts   |
|              |           | A Trigger  |            | 8 Integral counts on 2 since 1   |
|              |           | 0 -- Trigger on 1st analog channel used                                |            |  |
|              |           | 1 -- Digital trigger on SE channel 1H                                  |            |  |
|              |           | 2 -- Same as 0, but sets Control #1 high on trigger, low when finished |            |  |
|              |           | B Trigger option   |            |  |
|              |           | 0 -- Trigger immediately   |            |  |
|              |           | 1 -- Trigger if above limit (high)                                     |            |  |
|              |           | 2 -- Trigger if below limit (low)                                      |            |  |
|              |           | 3 -- Trigger on rising edge  |            |  |
|              |           | 4 -- Trigger on falling edge   |            |  |
|              |           | C Destination  |            |  |
|              |           | 0 -- Input Storage   |            |  |
|              |           | 1 -- Serial port, 9600 baud  |            |  |
|              |           | 2 -- Serial port, 76,800 baud  |            |  |
|              |           | D Measurement  |            |  |
|              |           | 0 -- Differential measurement  |            |  |
|              |           | 1 -- Single-ended measurement  |            |  |
|              |           |  | <b>101</b> | <b>OUTPUT OPTION:</b>  |
|              |           |  |            | 0 Average over execution interval                                      |
|              |           |  |            | 0-- Continuous averaging   |
|              |           |  |            | xxxx Specify avg interval in ms  |
|              |           |  |            | xxxx-- Capture all events until  |
|              |           |  |            | xxxx edges of channel 1  |
|              |           |  |            | 9999-- Test Memory   |
|              |           |  | <b>102</b> | <b>FUNCTION:</b>   |
|              |           |  |            | 0 Channel state  |
|              |           |  |            | 1 Duty cycle   |
|              |           |  |            | 2 Counts   |
|              |           |  |            | 3 Memory test  |
|              | <b>18</b> | <b>OPTION codes:</b>   |            |  |
|              |           | 0 0.1 seconds into minute (max 600)                                    |            |  |
|              |           | 1 minutes into day (max 1440)  |            |  |
|              |           | 2 hours into year (max 8784)   |            |  |

• STANDARD IN OSX-0.1

§ STANDARD IN OSX-1.1

‡ STANDARD IN OSX-2.1

## PROCESSING INSTRUCTIONS

(F is fixed data (constant); X, Y, & Z are input locations)

| INST. | 01:       | 02: | 03: | INST. | 01:              | 02:                     | 03:      | 04:                        | 05:    | 06:  | 07: | 08: | 09: |    |
|-------|-----------|-----|-----|-------|------------------|-------------------------|----------|----------------------------|--------|------|-----|-----|-----|----|
| 30    | Z=F       | F   | Z   | 47    | Z=X <sup>Y</sup> | X                       | Y        | Z                          |        |      |     |     |     |    |
| 31    | Z=X       | X   | Z   | 48    | Z=SIN(X)         | X                       | Z        |                            |        |      |     |     |     |    |
| 32    | Z=Z+1     | Z   |     | 49    | SPA MAX          | SWATH                   | 1ST LOC  | MAX†                       |        |      |     |     |     |    |
| 33    | Z=X+Y     | X   | Y   | 50    | SPA MIN          | SWATH                   | 1ST LOC  | MIN†                       |        |      |     |     |     |    |
| 34    | Z=X+F     | X   | F   | 51    | SPA AVG          | SWATH                   | 1ST LOC  | AVG                        |        |      |     |     |     |    |
| 35    | Z=X-Y     | X   | Y   | 53    | A * X+B          | STRT LOC                | A1       | B1                         | A2     | B2   | A3  | B3  | A4  | B4 |
| 36    | Z=X * Y   | X   | Y   | 54    | BLOCK MOVE       | NO VALS                 | S LOC    | STEP                       | D LOC  | STEP |     |     |     |    |
| 37    | Z=X * F   | X   | F   | 55    | POLYNOMIAL       | REPS                    | X        | F(X)                       | C0     | C1   | C2  | C3  | C4  | C5 |
| 38    | Z=X/Y     | X   | Y   | 56    | SAT VP           | TEMP                    | VP       |                            |        |      |     |     |     |    |
| 39    | Z=SQRT(X) | X   | Z   | 57    | WB/DB T to VP    | PRESSURE                | DB TEMP  | WB TEMP                    | VP     |      |     |     |     |    |
| 40    | Z=LN(X)   | X   | Z   | 58    | LP FILTER        | REPS                    | X        | F(X)                       | WGHT F |      |     |     |     |    |
| 41    | Z=EXP(X)  | X   | Z   | 59    | X/(1-X)          | REPS                    | X        | MULT                       |        |      |     |     |     |    |
| 42    | Z=1/X     | X   | Z   | 60    | FFT              | LOG <sub>2</sub> (SMPL) | OPTIONS† | LOG <sub>2</sub> (BIN/AVG) | IN LOC | MULT |     |     |     |    |
| 43    | Z=ABS(X)  | X   | Z   | 61    | INDIR MOVE       | SOURCE                  | DESTIN   |                            |        |      |     |     |     |    |
| 44    | Z=FRAC(X) | X   | Z   | 62    | (see below)      |                         |          |                            |        |      |     |     |     |    |
| 45    | Z=INT(X)  | X   | Z   | 66    | Z=ARCTAN(X/Y)    | X                       | Y        | Z                          |        |      |     |     |     |    |
| 46    | Z=X MOD F | X   | F   |       |                  |                         |          |                            |        |      |     |     |     |    |

  

| INST. | 01:      | 02:     | 03:      | 04:     | 05:       | 06:       | 07:      | 08:        | 09:   |       |
|-------|----------|---------|----------|---------|-----------|-----------|----------|------------|-------|-------|
| 62    | COV/CORR | NO VALS | NO MEANS | NO VARS | NO S DEVS | NO COVARs | NO CORRs | NO SAMPLES | S LOC | D LOC |

### †Option Codes

#### INST.

49,50 MAX/MIN:

0xxx Store spatial max or min at location xxx  
 1xxx Max or min at location xxx and location of max or min at xxx+1  
 x = 1 Orthogonal (East & North)

#### 60 OPTION code:

0x Power Spectra  
 1x Real and Imaginary  
 2x Magnitude and Phase  
 x=0 No Taper  
 x=1 Taper

## OUTPUT PROCESSING INSTRUCTIONS

| INST. | 01:         | 02:  | 03:          | 04:      | 05:  | INST. | 01: | 02:         | 03:     | 04:                             | 05:   | 06:       | 07:     |         |          |
|-------|-------------|------|--------------|----------|------|-------|-----|-------------|---------|---------------------------------|-------|-----------|---------|---------|----------|
| 69    | WIND VECTOR | REPS | SMPL/SUB INT | SEN OUT† | WS/E | WD/N  | 75  | HISTOGRAM   | REPS    | BINS                            | FORM† | B SEL LOC | WV LOC† | LOW LIM | HIGH LIM |
| 70    | SAMPLE      | REPS | LOC          |          |      |       | 77  | REAL TIME   | OPTION† |                                 |       |           |         |         |          |
| 71    | AVERAGE     | REPS | LOC          |          |      |       | 78  | RESOLUTION  | OPTION† |                                 |       |           |         |         |          |
| 72    | TOTALIZE    | REPS | LOC          |          |      |       | 79  | SMPL ON M M | REPS    | LOC (must follow Inst 73 or 74) |       |           |         |         |          |
| 73    | MAXIMUM     | REPS | TIME†        | LOC      |      |       | 80  | STORE AREA  | AREA†   | LOC/ID                          |       |           |         |         |          |
| 74    | MINIMUM     | REPS | TIME†        | LOC      |      |       | 81  | see below   |         |                                 |       |           |         |         |          |
|       |             |      |              |          |      |       | 82  | STD DEV     | REPS    | LOC                             |       |           |         |         |          |

  

| INST. | 01:                | 02:  | 03:   | 04:   | 05:       | 06:      | 07:     | 08:      | 09:     | 10:     |       |
|-------|--------------------|------|-------|-------|-----------|----------|---------|----------|---------|---------|-------|
| 81    | RAINFLOW HISTOGRAM | REPS | S LOC | SWATH | MEAN BINS | AMP BINS | LOW LIM | HIGH LIM | MIN AMP | OPTION† | D LOC |

### †Option Codes

#### INST.

69 SENSor/OUTPUT type codes:

x0 Avg WS,  $\theta_1$ ;  $\sigma(\theta_1)$   
 x1 Avg WS,  $\theta_1$   
 x2 Avg WS, resultant U,  $\theta_u$ ;  $\sigma(\theta_u)$   
 x = 0 Polar (speed & direction)  
 x = 1 Orthogonal (East & North)

75 FORM codes:

0 Open form (data beyond limits is included)  
 1 Closed form (data beyond limits is excluded)

#### WV LOCation:

0 frequency distribution

77 OPTION codes:

xxx1 Seconds  
 xx1x Hour-Minute  
 xx2x Hour-Minute, 2400 at midnight  
 x1xx Day  
 x2xx Day, Previous day at midnight  
 1xxx Year  
 (0 = no output, e.g., 110 = Day, Hour-Minute)

78 OPTION codes:

0 Low resolution  
 1 High resolution

80 AREA codes:

1 Final Storage  
 3 Input Storage

81 OPTION codes, 2 Digits:

00 - Closed form/Fraction output  
 01 - Closed form/Counts output  
 10 - Open form/Fraction output  
 11 - Open form/Counts output

73,74 TIME of max or min:

00 Max/min value only  
 01 With Seconds  
 10 With Hour-Minute  
 11 With Hour-Minute, Seconds

## PROGRAM CONTROL INSTRUCTIONS

(F is fixed data (constant); X, Y, & Z are input locations)

| INST. | 01:         | 02:                | 03:   | 04: | INST. | 01:           | 02:        | 03:       | 04:  | INST. | 01:         |            |
|-------|-------------|--------------------|-------|-----|-------|---------------|------------|-----------|------|-------|-------------|------------|
| 83    | IF CASE < F | F                  | CMD†  |     | 89    | IF X <=> F    | X          | COMP†     | F    | CMD†  | 95          | ELSE       |
| 85    | LABEL SUBR  | SUBR# (1-9, 79-99) |       |     | 90    | LOOP INDEX    | STEP       |           |      | 96    | END         |            |
| 86    | DO          | CMD†               |       |     | 91    | IF FLAG/INPUT | OPTION†    | CMD†      |      | 97    | SERIAL OUT† | OPTION†    |
| 87    | LOOP        | DELAY              | COUNT |     | 92    | IF TIME       | T into INT | INT (min) | CMD† | 99    | see below   |            |
| 88    | IF X <=> Y  | X                  | COMP† | Y   | CMD†  | 93            | BEGIN CASE | CASE LOC  |      | 98    | SEND CHAR   | BAUD/CHAR† |

  

| INST. | 01:       | 02:     | 03:  | 04:       | 05:        | 06:     | 07:        | 08:         | 09: | 10+(X)          | ...     |           |          |
|-------|-----------|---------|------|-----------|------------|---------|------------|-------------|-----|-----------------|---------|-----------|----------|
| 97    | INIT TELE | OPTION† | FLAG | LIM (SEC) | F DEL(SEC) | NO TRYs | S DEL(MIN) | FAILURE LOC | ID  | NO of RF STA(X) | STA IDS | NO DIGITS | PHONE NO |

### †Option Codes

83-93 CoMmand codes:

0 Go to end of Program Table  
 1-9, 79-99 Call Subroutine  
 10-19 Set flag 0-9 high  
 20-29 Set flag 0-9 low  
 30 Then Do  
 31 Exit Loop if true  
 32 Exit Loop if false  
 41-46 Set Port 1-6 high  
 51-56 Set Port 1-6 low  
 61-66 Toggle Port 1-6  
 71-76 Pulse Port 1-6

88,89 COMParison codes:

1 =  
 2 ≠  
 3 ≥  
 4 <

91 OPTION codes:

1x Do if flag x is high  
 2x Do if flag x is low  
 4x Do if input x is high  
 5x Do if input x is low

"Input" refers to high side of differential channel

96 SERIAL OUT

Cannot output to both printer and Storage Module.

96 OPTION codes:

00 Tape  
 1y Printer, ASCII  
 2y Printer, Binary  
 30 SM192/716  
 31 Filemark to SM192/716

97 OPTION codes:

0y RF modem  
 1y DIRECT  
 2y DC112

98 BAUD/CHARacter Value

yxxx xxx = ASCII Value (0-127)  
 (y = Baud Rate Code)

FLAG DESCRIPTIONS:

0 Output Flag  
 1-8 User Flags  
 9 Intermed proc disable flag

BAUD RATE CODES:

y= 0 300 baud  
 1 1200 baud  
 2 9600 baud  
 3 76,800 baud

## ERROR CODES

3 -- Program Table full  
 4 -- Intermediate Storage full  
 8 -- 21X was reset by watch dog timer  
 9 -- Insufficient Input Storage  
 11 -- Attempt to allocate unavailable storage  
 20 -- Subroutine encountered before necessary END  
 21 -- END without IF, LOOP, or SUBROUTINE  
 22 -- Missing END, nonexistent SUBROUTINE  
 24 -- ELSE in SUBROUTINE without IF  
 25 -- ELSE without IF  
 26 -- EXIT LOOP without LOOP

30 -- IFs and/or LOOPS nested too deep  
 31 -- SUBROUTINES nested too deep  
 40 -- Table 2 Execution Interval too short or Instruction does not exist  
 60 -- Inadequate Input Storage for Burst/FFT  
 61 -- Burst Mode Scan Rate too short

### \*D Mode Errors

97 -- Time out on tape read  
 98 -- Uncorrectable errors on tape read  
 99 -- Wrong file type, program error, or program not received

## DAY OF YEAR CALENDAR

|            | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>JAN</b> | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |
| <b>FEB</b> | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  |     |     |
| <b>MAR</b> | 60  | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  | 80  | 81  | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90  |
| <b>APR</b> | 91  | 92  | 93  | 94  | 95  | 96  | 97  | 98  | 99  | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 |     |
| <b>MAY</b> | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 |
| <b>JUN</b> | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 | 181 |     |
| <b>JUL</b> | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 | 211 | 212 |
| <b>AUG</b> | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 | 224 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 | 240 | 241 | 242 | 243 |
| <b>SEP</b> | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 | 256 | 257 | 258 | 259 | 260 | 261 | 262 | 263 | 264 | 265 | 266 | 267 | 268 | 269 | 270 | 271 | 272 | 273 |     |
| <b>OCT</b> | 274 | 275 | 276 | 277 | 278 | 279 | 280 | 281 | 282 | 283 | 284 | 285 | 286 | 287 | 288 | 289 | 290 | 291 | 292 | 293 | 294 | 295 | 296 | 297 | 298 | 299 | 300 | 301 | 302 | 303 | 304 |
| <b>NOV</b> | 305 | 306 | 307 | 308 | 309 | 310 | 311 | 312 | 313 | 314 | 315 | 316 | 317 | 318 | 319 | 320 | 321 | 322 | 323 | 324 | 325 | 326 | 327 | 328 | 329 | 330 | 331 | 332 | 333 | 334 |     |
| <b>DEC</b> | 335 | 336 | 337 | 338 | 339 | 340 | 341 | 342 | 343 | 344 | 345 | 346 | 347 | 348 | 349 | 350 | 351 | 352 | 353 | 354 | 355 | 356 | 357 | 358 | 359 | 360 | 361 | 362 | 363 | 364 | 365 |

Add 1 to unshaded values during leap years.



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