

APPENDIX C  
PAGE 0 MEMORY MAP

The Instant Pascal software uses page 0 locations 06-B4 and FC-FF. (All addresses in this Appendix are hexadecimal.) The following locations, in particular, may be of direct interest to the user.

<u>Hex</u>	<u>No.</u>	<u>Cold</u>	<u>Warm</u>	<u>Parameter Description</u>
<u>Address</u>	<u>Bytes</u>	<u>Start</u>	<u>Start</u>	
		<u>Value</u>	<u>Value</u>	
06-07	2	0200	-	The first address used by the software.
08-09	2	0FFF	-	The last address used by the software. (one less than the answer to the MEMORY SIZE? question).
12-13	2	0EC2	-	The address of the first byte of the Instant Pascal program. This address decreases as the program grows.
14-15	2	0EC3	-	The address of the last byte of the Instant Pascal program.
16-17	2	0FC4	-	The starting address of the translator's 60-byte input area. The input area's last byte is at the address in 08.

Hex Address	No. Bytes	Cold Start Value	Warm Start Value	Parameter Description
18-19	2	OEC4	-	The starting address of the translator's 256-byte output area. The output area immediately precedes the input area, and the object program immediately precedes the output area.
1A-1B	2	02FC	-	Location \$0200-\$02FF contains fixed tables. A run-time stack normally begins at \$0300 and builds upward. \$1A-\$1B contains the initial address of the top of the empty stack which is 4 less than the address of the first byte to be used by the stack, that is, \$02FC. The answer to the + <M> question is (\$12)-(\$1A)-250, that is, 246 less than the number of free bytes from the bottom of the stack to the start of the program.

NOTE

You may open up a hold from \$0300 to a higher address by increasing the address in \$1A after the initialization sequence. For example, if you wish Instant Pascal not to use \$0300-\$03C9, the address is \$1A should be set to \$03C6 or greater.

Hex Address	No. Bytes	Cold Start Value	Warm Start Value	Parameter Description
1E	1			Holds the contents of the processor's S register after an execution-time error or break. Upon return to the interpreter from a break, a check is made to ensure that the current value of S does not exceed the contents of \$1E, which would indicate the loss of information.
2A-2B	2	0014	-	Contains the answer to the WIDTH? question.
FE-FF	2			Used by SUBR and FUNC to communicate the address of a Pascal data item to a machine-language subroutine (See 7.1).

APPENDIX D

ASCII CHARACTER SET

HEX	DEC	ASCII	HEX	DEC	ASCII	HEX	DEC	ASCII	HEX	DEC	ASCII
00	0	NUL	20	32	SP	40	64	@	60	96	
01	1	SOH	21	33	!	41	65	A	61	97	a
02	2	STX	22	34	"	42	66	B	62	98	b
03	3	ETX	23	35	#	43	67	C	63	99	c
04	4	EOT	24	36	\$	44	68	D	64	100	d
05	5	ENQ	25	37	%	45	69	E	65	101	e
06	6	ACK	26	38	&	46	70	F	66	102	f
07	7	BEL	27	39	'	47	71	G	67	103	g
08	8	BS	28	40	(	48	72	H	68	104	h
09	9	HT	29	41	)	49	73	I	69	105	i
0A	10	LF	2A	42	*	4A	74	J	6A	106	j
0B	11	VT	2B	43	+	4B	75	K	6B	107	k
0C	12	FF	2C	44	,	4C	76	L	6C	108	l
0D	13	CR	2D	45	-	4D	77	M	6D	109	m
0E	14	SO	2E	46	.	4E	78	N	6E	110	n
0F	15	SI	2F	47	/	4F	79	O	6F	111	o
10	16	DLE	30	48	0	50	80	P	70	112	p
11	17	DC1	31	49	1	51	81	Q	71	113	q
12	18	DC2	32	50	2	52	82	R	72	114	r
13	19	DC3	33	51	3	53	83	S	73	115	s
14	20	DC4	34	52	4	54	84	T	74	116	t
15	21	NAK	35	53	5	55	85	U	75	117	u
16	22	SYN	36	54	6	56	86	V	76	118	v
17	23	ETB	37	55	7	57	87	W	77	119	w
18	24	CAN	38	56	8	58	88	X	78	120	x
19	25	EM	39	57	9	59	89	Y	79	121	y
1A	26	SUB	3A	58	:	5A	90	Z	7A	122	z
1B	27	ESC	3B	59	;	5B	91	[	7B	123	{
1C	28	FS	3C	60	<	5C	92	\	7C	124	
1D	29	GS	3D	61	=	5D	93	]	7D	125	}
1E	30	RS	3E	62	>	5E	94		7E	126	
1F	31	VS	3F	63	?	5F	95		7F	127	DEL

- |     |                         |     |                             |
|-----|-------------------------|-----|-----------------------------|
| NUL | - Null                  | DLE | - Data Link Escape          |
| SOH | - Start of Heading      | DC  | - Device Control            |
| STX | - Start of Text         | NAK | - Negative Acknowledge      |
| ETX | - End of Text           | SYN | - Synchronous Idle          |
| EOT | - End of Transmission   | ETB | - End of Transmission Block |
| ENQ | - Enquiry               | CAN | - Cancel                    |
| ACK | - Acknowledge           | EM  | - End of Medium             |
| BEL | - Bell                  | SUB | - Substitute                |
| BS  | - Backspace             | FSC | - Escape                    |
| HT  | - Horizontal Tabulation | FS  | - File Separator            |
| LF  | - Line Feed             | GS  | - Group Separator           |
| VT  | - Vertical Tabulation   | RS  | - Record Separator          |
| FF  | - Form Feed             | US  | - Unit Separator            |
| CR  | - Carriage Return       | SP  | - Space (Blank)             |
| SO  | - Shift Out             | DEL | - Delete                    |
| SI  | - Shift In              |     |                             |

APPENDIX E

EXECUTION-TIME DIAGNOSTICS

Note: Error numbers with an asterisk are internal checks.  
Their occurrence may indicate loss of memory integrity.

- 01\*
- 02\*
- 03 Value Stack has exceeded available space.
- 04\*
- 05\*
- 06 Too few actual parameters
- 07 Too many actual parameters
- 08 Actual parameter of a VAR formal parameter is an expression.
- 09\*
- 10\*
- 11 Nonordinal type where ordinal (scalar) type required.
- 12 Maximum permissible dynamic statement depth of 24 exceeded.
- 13 Ordinal value computation out of range (Array and set selection)
- 14\*
- 15\*
- 16 Expression result type should be Boolean and is not.
- 17 Function identifier on left-hand side of assignment does not refer to a declared function.
- 18\*
- 19 Type compatibility error in assignment or actual value parameter.
- 20 Type (s) improper for operator.
- 21 Attempt to make array selection on a nonarray.
- 22 String length excessive for operation.
- 23 Empty string improper for operation.

24\*  
 25 Attempt to negate a nonnumeric.  
 26 Operand should be Boolean.  
 27\*  
 28 GOTO with destination textual depth greater than that of  
 GOTO.  
 29 Actual/formal parameter type discrepancy.  
 30 Control variable has changed in FOR loop.  
 31 Argument of CHR not in 0..255.  
 32 Value less than lower limit of subrange.  
 33 Value greater than upper limit of subrange.  
 34 Argument not ordinal (scalar).  
 35 Argument not real or integer.  
 36 GOTO refers to an undefined label.  
 37 Actual/formal VAR parameter type discrepancy.  
 38 Array reference to STRING with noninteger subscript.  
 39 Right operand of IN not a set or packed set.  
 40 Source String too long for receiving string.  
 41 Improper argument of record select (.) operator.  
 42\*  
 43 No match between value of expression and CASE constants.  
 44 Argument of WITH is not a record variable.  
 45 More than the maximum of 16 records in a program.  
 46 Field identifier not preceded by "." and not in the  
 scope of a WITH.  
 47\*  
 48 Processor stack pointer is higher than when break dis-  
 continued execution; Break-in-progress is now false and  
 + G will start at beginning.  
 49 Processor stack is about to overflow.  
 50 Attempted division by zero.  
 51 Floating-point overflow.  
 52 Fixed-point overflow in TRUNC or ROUND.  
 53 MOD with negative divisor.

APPENDIX F

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