

#¹\$²K³+⁴Miscellaneous Information

Pin assignments, screen colors, scan codes, and control code acronyms.

This screen gives access to:

Serial Port Pin Assignments

Printer Port Pin Assignments

Game Port Pin Assignments

Colors on EGA/VGA display

Keyboard Scan Codes

Acronyms for ASCII Control Codes

Compiled from INT2GUID.ADD in the INT2GUID.ZIP package included in the Interrupt List.

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1# MISC_INF_0

2\$ Miscellaneous Information

3K Miscellaneous Information;Additional tables

4+ m:9

#⁵\$⁶K⁷+⁸Serial Port Pin Assignments

RS-232-C serial port (COM port) pin assignments.

*n = PC pin, n is pin number on the 9 pin AT connector.

> = from PC or DTE; < = to PC or DTE. DTE = Data Terminal Equipment.

	1	FG	Frame ground		14	TD2	>	Secondary TD	
*3	2	TD	>	Transmit Data		15	TC	<	Transmission Signal Timing
*2	3	RD	<	Receive Data		16	RD2	<	Secondary RD
*7	4	RTS	>	Request To Send		17	RC	<	Receiver Signal Timing
*8	5	CTS	<	Clear To Send		18			(unassigned)
*6	6	DSR	<	Data Set Ready		19	RS2	>	Secondary RTS
*5	7	SG		Signal ground	*4	20	DTR	>	Data Terminal Ready
*1	8	DCD	<	Data Carrier Detect		21	SQ	<	Signal Quality Detector
	9			(test)	*9	22	RI	<	Ring Indicator
	10			(test)		23	DRS	=	Data signal Rate Selector
	11			(unassigned)		24	TT	>	Transmit Signal Timing
	12	CD2	<	Secondary DCD		25			(unassigned)
	13	CT2	<	Secondary CTS					

See also INT 14.

Printer Port and Game Port pin assignments are also available.

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5# MISC_INF_12

6\$ Serial Port Pin Assignments

7K Serial Port;Pin Assignments;COM port;RS-232-C;INT 14;14

8+ MISC_INF_:0

#9\$10K11+12Printer Port Pin Assignments

Printer port (parallel port, LPT port) pin assignments.

25 pin **PC printer port** and 36 pin **Centronic port**.

> = from PC; < = to PC. Pins 1-9 are bidirectional on PS-2 models in ext. mode.

Data		Gnd	Data		Gnd
1 1	> ^Strobe	19 19	10 10	< ^Acknowledge	24 28
2 2	> Data Bit 0	20 20	11 11	< Busy	25 29
3 3	> " " 1	20 21	12 12	< Paper End	18 33
4 4	> " " 2	21 22	13 13	< Select	18 33
5 5	> " " 3	21 23	14 14	> ^Auto Feed xt	18 33
6 6	> " " 4	22 24	32 15	< ^Error	18 33
7 7	> " " 5	22 25	31 16	> ^Initialize	18 33
8 8	> " " 6	23 26	36 17	> ^Select In	18 33
9 9	> " " 7	23 27			

See also INT 17.

Serial Port and Game Port pin assignments are also available.

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9# MISC_INF_13

10\$ Printer Port Pin Assignments

11K Printer Port;Pin Assignments;Parallel port;LPT port;INT 17;17

12+ MISC_INF_:0

#13\$14K15+16Game Port Pin Assignments

Game port pin assignments. (15 pins in 2 rows)

1,8,9:	+5 V	
15:	+5 V or Midi RXD	
4,5:	0 V (ground)	
12:	0 V or Midi TXD	
2:	Switch A-1	Switches are sensed active when shorted to ground.
3:	X-position A	
6:	Y-position A	
7:	Switch A-2	Position sensors are variable resistors
10:	Switch B-1	0 ohms - 250 kilohms from the position pins to +5 V.
11:	X-position B	
13:	Y-position B	
14:	Switch B-2	

See also [INT 15 function 84](#).

[Serial Port](#) and [Printer Port](#) pin assignments are also available.

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13# MISC_INF_14

14\$ Game Port Pin Assignments

15K Game Port;Pin Assignments;INT 15 AH = 84;15 84

16+ MISC_INF_:0

#17\$18K19+20Colors on EGA/VGA display

Screen colors.

Normal colors	Bright colors	Attribute bits
0 00 Black	8 08 Dark grey	7 normal Foreground blink
1 01 Blue	9 09 Light blue	7 alternate Background bright
2 02 Green	10 0A Light green	6-4 Background color
3 03 Cyan	11 0B Light cyan	3 normal Foreground bright
4 04 Red	12 0C Light red	3 alternate Alternate char. set
5 05 Magenta	13 0D Light magenta	2-0 Foreground color
6 06 Brown	14 0E Yellow	
7 07 White (grey)	15 0F Bright (white)	

Normal/alternate function:	Set	Read
Attribute bit 7:	<u>INT 10 AX=1003</u>	<u>INT 10 AH=1B</u> offs. 2D bit 5
Attribute bit 3:	<u>INT 10 AX=1103</u> *	<u>INT 10 AH=1B</u> offs. 2B<>offs. 2C

* BL bits 0,1,4<>bits 2,3,5. The bright attribute is still active, it can be disabled/enabled by INT 10 AX=1000 BX=0712/0F12.

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17# MISC_INF_10

18\$ Colors on EGA/VGA display

19K Colors on EGA/VGA display;Screen Colors;Colors (screen);Normal colors;Bright colors;Screen attributes;Attribute bits;Normal attribute;Alternate attribute;Foreground (screen);Background (screen);INT 10 AH = 10;10 10;INT 10 AX = 1000;10 1000;INT 10 AX = 1003;10 1003;INT 10 AX = 1013;10 1013

20+ MISC_INF_:0

#²¹\$²²K²³+²⁴Keyboard Scan Codes

Scan codes: special keys. Num Lock off (on: swap Plain/Shift col. Up - Del).

*: Not INT 16 AH = 00. See also next page.

	Plain	Shift	Ctrl	Alt		Plain	Shift	Ctrl	Alt
Up	4800	4838	--	--	F1	3B00	5400	5E00	6800
Down	5000	5032	--	--	F2	3C00	5500	5F00	6900
Left	4B00	4B34	7300	--	F3	3D00	5600	6000	6A00
Right	4D00	4D36	7400	--	F4	3E00	5700	6100	6B00
Home	4700	4737	7700	--	F5	3F00	5800	6200	6C00
End	4F00	4F31	7500	--	F6	4000	5900	6300	6D00
PgUp	4900	4939	8400	--	F7	4100	5A00	6400	6E00
PgDn	5100	5133	7600	--	F8	4200	5B00	6500	6F00
Ins	5200	5230	--	--	F9	4300	5C00	6600	7000
Del	5300	532E	--	--	F10	4400	5D00	6700	7100
Esc	011B	011B	011B	*0100	F11	*8500	*8700	*8900	*8B00
Tab	0F09	0F00	*9400	*A500	F12	*8600	*8800	*8A00	*8C00
BkSp	0E08	0E08	0E7F	*0E00					
Return	1C0D	1C0D	1C0A	*1C00	Enter	1C0D	1C0D	1C0A	--
Space	3920	3920	3920	3920					

Scan codes: special keys extended codes. Num Lock off. INT 16 AH = 10

Numeric Keypad

Special Keypad

	Plain	Shift	Ctrl	Alt		Plain	Shift	Ctrl	Alt
Up	4800	4838	8D00	*--		48E0	48E0	8DE0	9800
Down	5000	5032	9100	*--		50E0	50E0	91E0	A000
Left	4B00	4B34	7300	*--		4BE0	4BE0	73E0	9B00
Right	4D00	4D36	7400	*--		4DE0	4DE0	74E0	9D00
Home	4700	4737	7700	*--		47E0	47E0	77E0	9700
End	4F00	4F31	7500	*--		4FE0	4FE0	75E0	9F00
PgUp	4900	4939	8400	*--		49E0	49E0	84E0	9900
PgDn	5100	5133	7600	*--		51E0	51E0	76E0	A100
Ins	5200	5230	9200	*--		52E0	52E0	9200	A200
Del	5300	532E	9300	--		53E0	53E0	93E0	A300
5	4C00	4C35	8F00	*--	* = compose				
/	E02F	E02F	9500	A400					
*	372A	372A	9600	3700					
-	4A2D	4A2D	8E00	4A00					
+	4E2B	4E2B	9000	4E00	Enter	E00D	E00D	E00A	A600

Scan codes: digits, punctuation marks, etc.

NB! US keyboard. The high byte may differ if a national keyboard is active, and the symbols may not be paired as in the table.

*: Not INT 16 AH = 00. *: See also previous page.

	Plain	Shift	Ctrl	Alt		Plain	Shift	Ctrl	Alt
` ~	2960	297E	--	*2900	[{	1A5B	1A7B	1A1B	*1A00
1 !	0231	0221	--	7800	] }	1B5D	1B7D	1B1D	*1B00

21# MISC_INF_11

22\$ Keyboard Scan Codes

23K Keyboard Scan Codes;Scan Codes;INT 16 AH = 00;16 00;INT 16 AH = 10;16 10

24+ MISC_INF_:0

2	@	0332	0340	0300	7900	;	:	273B	273A	--	*2700	
3	#	0433	0423	--	7A00	'	"	2827	2822	--	*2800	
4	\$	0534	0524	--	7B00	\	|	2B5C	2B7C	2B1C	*2B00	
5	%	0635	0625	--	7C00	\	|	565C	567C	--	--	102nd key
6	^	0736	075E	071E	7D00	,	<	332C	333C	--	*3300	
7	&	0837	0826	--	7E00	.	>	342E	343E	--	*3400	
8	*	0938	092A	--	7F00	/	?	352F	353F	--	*3500	
9	(	0A39	0A28	--	8000	+/		352F	352F	--	--	numeric
0	)	0B30	0B29	--	8100	+*		372A	372A	--	--	numeric
-	_	0C2D	0C5F	0C1F	8200	+ -		4A2D	4A2D	--	--	numeric
=	+	0D3D	0D2B	--	8300	++		4E2B	4E2B	--	--	numeric

Scan codes: letters. Caps Lock off. (Caps Lock on: swap Plain/Shift columns)
NB! US keyboard. The high byte may differ if a national keyboard is active.

	Plain	Shift	Ctrl	Alt		Plain	Shift	Ctrl	Alt
a	1E61	1E41	1E01	1E00	n	316E	314E	310E	3100
b	3062	3042	3002	3000	o	186F	184F	180F	1800
c	2E63	2E43	2E03	2E00	p	1970	1950	1910	1900
d	2064	2044	2004	2000	q	1071	1051	1011	1000
e	1265	1245	1205	1200	r	1372	1352	1312	1300
f	2166	2146	2106	2100	s	1F73	1F53	1F13	1F00
g	2267	2247	2207	2200	t	1474	1454	1414	1400
h	2368	2348	2308	2300	u	1675	1655	1615	1600
i	1769	1749	1709	1700	v	2F76	2F56	2F16	2F00
j	246A	244A	240A	2400	w	1177	1157	1117	1100
k	256B	254B	250B	2500	x	2D78	2D58	2D18	2D00
l	266C	264C	260C	2600	y	1579	1559	1519	1500
m	326D	324D	320D	3200	z	2C7A	2C5A	2C1A	2C00

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#²⁵\$²⁶K²⁷+²⁸ Acronyms for ASCII Control Codes

Alphabetic list of control codes (C0) and extended control codes (C1).

ACK= 6	DEL=127	FE3= 11	IS4= 28	PU2=146	STX= 2	US = 31
APC=159	DLE= 16	FE4= 12	LF = 10	RI =141	SUB= 26	VT = 11
BEL= 7	EM = 25	FE5= 13	LS0= 15	RS = 30	SYN= 22	VTS=138
BS = 8	ENQ= 5	FF = 12	LS1= 14	SI = 15	TC1= 1	
CAN= 24	EOT= 4	FS = 28	MW =149	SO = 14	TC2= 2	
CCH=148	EPA=151	GS = 29	NAK= 21	SOH= 1	TC3= 3	
CR = 13	ESA=135	HT = 9	NEL=133	SP = 32	TC4= 4	
CSI=155	ESC= 27	HTJ=137	NUL= 0	SPA=150	TC5= 5	
DC1= 17	ETB= 23	HTS=136	OSC=157	SS2=142	TC6= 6	
DC2= 18	ETX= 3	IND=132	PLD=139	SS3=143	TC7= 16	
DC3= 19	FE0= 8	IS1= 31	PLU=140	SSA=134	TC8= 21	
DC4= 20	FE1= 9	IS2= 30	PM =158	ST =156	TC9= 22	
DCS=144	FE2= 10	IS3= 29	PU1=145	STS=147	TCx= 23	

This list includes the graphics codes (G0):

32 20 SP Space	127 7F DEL Delete
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Control codes ASCII 0 - 31 (C0).

Often symbolized by ^ + char. @ - _, e.g. ^M=CR.

0 00 @ NUL Null	16 10 P DLE (TC7) Data Link Escape
1 01 A SOH (TC1) Start Of Heading	17 11 Q DC1 Device Control 1, Xon
2 02 B STX (TC2) Start of Text	18 12 R DC2 Device Control 2
3 03 C ETX (TC3) End of Text	19 13 S DC3 Device Control 3, Xoff
4 04 D EOT (TC4) End Of Transmission	20 14 T DC4 Device Control 4
5 05 E ENQ (TC5) Enquiry	21 15 U NAK (TC8) Not Acknowledge
6 06 F ACK (TC6) Acknowledge	22 16 V SYN (TC9) Synchronous idle
7 07 G BEL Bell	23 17 W ETB (TC10) End Transm. Block
8 08 H BS (FE0) Back Space	24 18 X CAN Cancel
9 09 I HT (FE1) Horizontal Tabulat.	25 19 Y EM End of Medium
10 0A J LF (FE2) Line Feed	26 1A Z SUB Substitute character
11 0B K VT (FE3) Vertical Tabulation	27 1B [ESC Escape seq. introd.
12 0C L FF (FE4) Form Feed	28 1C \ FS (IS4) File Separator
13 0D M CR (FE5) Carriage Return	29 1D] GS (IS3) Group Separator
14 0E N SO (LS1) Shift Out	30 1E ^ RS (IS2) Record Separator
15 0F O SI (LS0) Shift In	31 1F _ US (IS1) Unit Separator

TC=Transmission Control

FE=Format Effector

LS=Locking Shift

IS=Information Separator

Extended control codes 128 - 159 (C1).

Sometimes emulated by ESC + char. @ - _, e.g. Ansi code "ESC[" = "CSI"

128 80 @ (unassigned)	144 90 P DCS Device Control String
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25# MISC_INF_9

26\$ Acronyms for ASCII Control Codes

27K Acronyms for ASCII Control Codes;Control codes (acronyms)

28+ MISC_INF_:0

129	81	A	(unassigned)	145	91	Q	PU1 Private Use 1
130	82	B	(unassigned)	146	92	R	PU2 Private Use 2
131	83	C	(unassigned)	147	93	S	STS Set Transmit State
132	84	D	IND Index	148	94	T	CCH Cancel Character
133	85	E	NEL Next Line	149	95	U	MW Message Waiting
134	86	F	SSA Start Selected Area	150	96	V	SPA Start Protected Area
135	87	G	ESA End Selected Area	151	97	W	EPA End Protected Area
136	88	H	HTS Horizontal Tab. Set	152	98	X	(unassigned)
137	89	I	HTJ Horiz. Tab. w. Justif.	153	99	Y	(unassigned)
138	8A	J	VTJ Vertical Tab. Set	154	9A	Z	(unassigned)
139	8B	K	PLD Partial Line Down	155	9B	[	CSI Control Seq. Introd.
140	8C	L	PLU Partial Line Up	156	9C	\	ST String Terminator
141	8D	M	RI Reverse Index	157	9D	]	OSC Operating System Command
142	8E	N	SS2 Single Shift G2	158	9E	^	PM Privacy Message
143	8F	O	SS3 Single Shift G3	159	9F	_	APC Application Program Cmd.

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