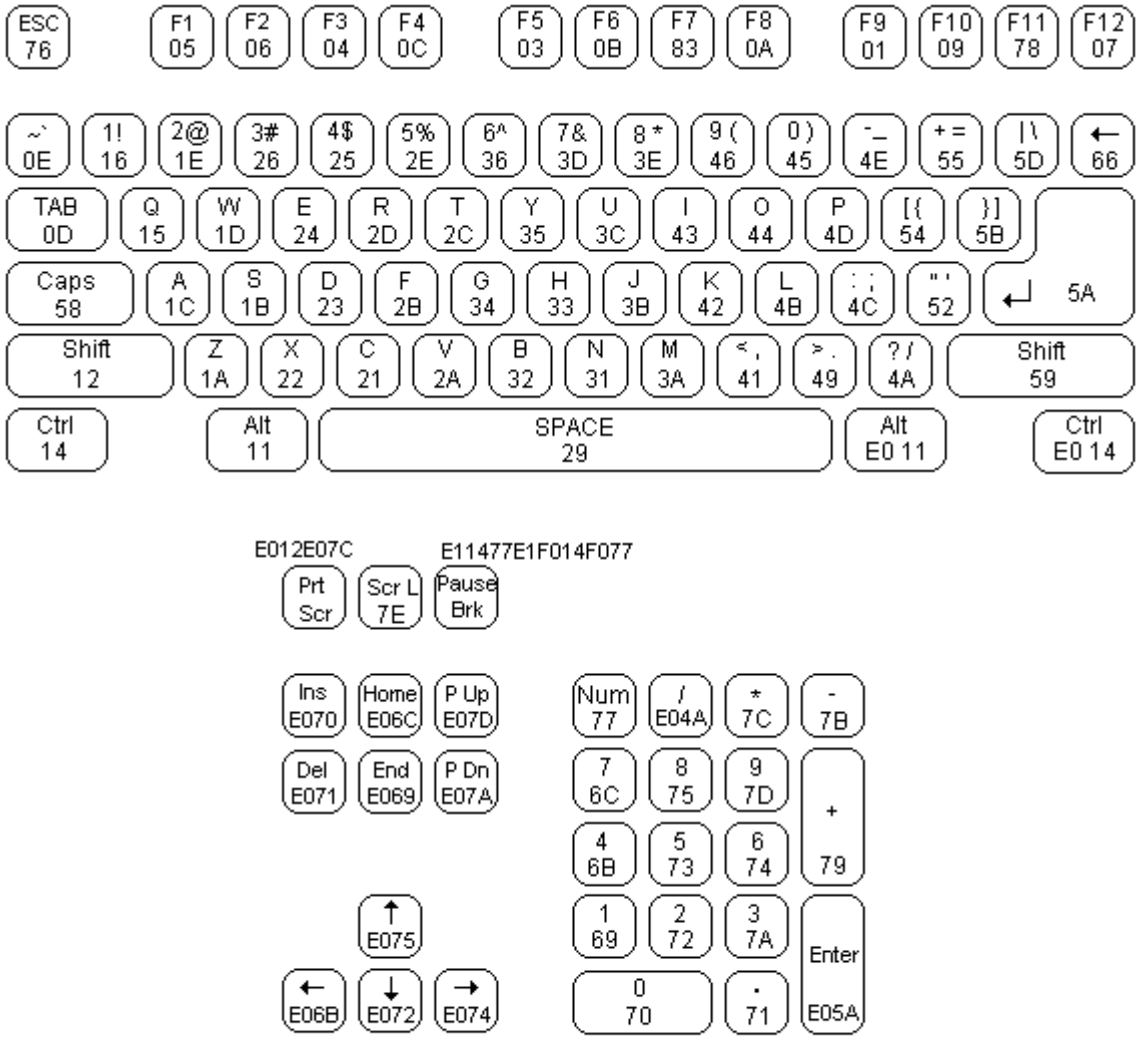
Phil Storrs PC Hardware book

The Scan Code values generated by the PC Keyboard



Thanks to Craig Peacock, for the above diagrams. Craig maintains a good PC interfacing page at: **http://www.senet.com.au/~cpeacock/**

Scan code	Base case	Upper case	Scan code	Base case	Upper case	Scan code	Base case	Upper case
29	`	~	**02**	1	!	**03**	2	@
04	3	#	**05**	4	$	**06**	5	%
07	6	^	**08**	7	&	**09**	8	*
0A	9	(	**0B**	0	)	**0C**	-	_
0D	=	+	**0E**	Backspace	Backspace	**0F**	Tab	Back Tab
10	q	Q	**11**	w	W	**12**	e	**E**
13	r	R	**14**	t	T	**15**	y	Y
16	u	U	**17**	i	I	**18**	o	O
19	p	P	**1A**	[	{	**1B**	]	}
2B	\	|	**3A** note 1	Caps Lock	na	**1E**	a	A
1F	s	S	**20**	d	D	**21**	f	F

22	g	G	**23**	h	H	**24**	j	J
25	k	K	**26**	l	L	**27**	;	:
28	'	"	**2B** note 2	#	~	**1C**	Enter	Enter
2A note 1	Left Shift	na	**D5** note 2	\	|	**2C**	z	Z
2D	x	X	**2E**	c	C	**2F**	v	V
30	b	B	**31**	n	N	**32**	m	M
33	,	<	**34**	.	>	**35**	/	?
36 note 1	Right shift	na	**1D** note 1	Left Ctrl	na	**38** note 1	Left Alt	na
39	Spacebar	Spacebar	**E0,38** note 1	Right Alt	na	**E0,1D** note 1	Right Ctrl	na
E0,52	Insert	na	**E0,53**	Delete	na	**E0,4B**	Left Arrow	na
E0,47	Home	na	**E0,4F**	End	na	**E0,48**	Up Arrow	na
E0,49	Pg Up	na	**E0,51**	Pg Dn	na	**E0,4D**	Right Arrow	na
45,C5 note 1	Num Lock	na	**47**	Keypad 7	Home	**4B**	Keypad 4	Left Arrow
4F	Keypad 1	End	**E0,35**	Keypad /	Keypad /	**48**	Keypad 8	Up Arrow
4C	Keypad 5	na	**50**	Keypad 2	Dn Arrow	**52**	Keypad 0	Insert
E0,37	Keypad *	Keypad *	**49**	Keypad 9	Pg Up	**4D**	Keypad 6	Right Arrow
51	Keypad 3	Pg Dn	**53**	Keypad .	Delete	**4A**	Keypad -	Keypad -
4E	Keypad +	Keypad +	**E0,1C**	Keypad Enter	Keypad Enter	**01**	Escape	Escape
3B	F1	note 3	**3C**	F2	note 3	**3D**	F3	note 3
3E	F4	note 3	**3F**	F5	note 3	**40**	F6	note 3
41	F7	note 3	**42**	F8	note 3	**43**	F9	note 3
44	F10	note 3	**D9**	F11	note 3	**DA**	F12	note 3
2A,37	Prnt, Scrn	na	**46**	Scroll Lock	na			

- **All Scan Codes are given as Hexadecimal numbers.**
- **note 1:** These codes are not passed on to the buffer RAM by the Keyboard Service Routine.
- **note 2:** Only applicable to non-U.S. keyboard installations.
- **note 3:** See the table of Auxilary Byte values for the Special Keys and Key Combinations.
- **na** means not applicable to this key.

Each key on a PC keyboard has a Scan Code rather than an ASCII code associated with it. The above table indicates the Scan Code for each key on a 101 key PC Keyboard.

The Keyboard Processor chip, inside the keyboard assembly, scans the key matrix and when a key is pressed it sends the Scan Code for the key that was pressed, to the Keyboard Interface Circuit on the Computers System Board. The Keyboard Interface Circuit generates a Hardware Interrupt that calls a

Keyboard Service Routine into action. The keyboard Service Routine processes the Scan Code, consulting two Status bytes that keep track of the Shift State keys, and places a two byte code into a Keyboard Buffer Area in RAM. If the key pressed was an ASCII character, the two bytes of data are stored with the ASCII code as the Main Byte, and the Scan Code of the key pressed, as the Auxilary byte.

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