PS2 Keyboard Scan Codes

Modified by on 13-Sep-2017

When a key on the keyboard is pressed, a code is sent to the host CPU. With the aid of ASCII look-up tables, the host can determine the function of the pressed key. The transmitted code is called a scan code and is further sub-classed as a 'make' code in the case of a key being pressed.

If a key is held down without being released, the make code for that key will be sent continuously, in accordance with the defined auto-repeat (typematic) rate. It should be noted that if more than one key is pressed and held down, typematic mode only applies to the last key pressed.

When a pressed key is released, an additional scan code is sent to the host to let it know that the key that was pressed has now been released. This additional transmitted code is called a 'break' code.

Most scan codes are a single byte in length, with the exception of some of the extended keys (e.g. SHIFT, CTRL, PAUSE). The extended keys are recognizable by the E0h prefix to their make codes.

The corresponding break code for a key is composed of the prefix byte F0h, followed by the make code for that key. Again, extended keys are the exception to this rule with the F0h byte placed after the E0h byte of the initial make code.

The PAUSE key is an exception to both standard and extended key rulings. Firstly, its make code is 8 bytes in length and starts with E1h and not E0h. Secondly, it has no break code.

The make and break codes for all keys on the PS/2 keyboard constitute the scan code set. There are three scan code sets defined but only scan code set two is recognized fully and used as the default set by all modern PS/2 keyboards.

Table 1 lists all of the keys on a standard PS/2 keyboard, along with their unique scan codes.

Table 1. PS/2 keyboard scan codes (scan code set 2).

Key	Scan Code make (break)	Key	Scan Code make (break)
ESC	76 (F076)	K	42 (F042)
F1	05 (F005)	L	4B (F04B)
F2	06 (F006)	;	4C (F04C)
F3	04 (F004)	'	52 (F052)
F4	0C (F00C)	Enter	5A (F05A)
F5	03 (F003)	Shift (Left)	12 (F012)
F6	0B (F00B)	Z	1A (F01A)
F7	83 (F083)	X	22 (F022)

F8	0A (F00A)	C	21 (F021)
F9	01 (F001)	V	2A (F02A)
F10	09 (F009)	B	32 (F032)
F11	78 (F078)	N	31 (F031)
F12	07 (F007)	M	3A (F03A)
Prt Scr	E012E07C (E0F07CE0F012)	,	41 (F041)
Scroll Lock	7E (F07E)	.	49 (F049)
Pause/Break	E11477E1F014E077 (None)	/	4A (F04A)
`	0E (F00E)	Shift (Right)	59 (F059)
1	16 (F016)	Ctrl (left)	14 (F014)
2	1E (F01E)	Windows (left)	E01F (E0F01F)
3	26 (F026)	Alt (left)	11 (F011)
4	25 (F025)	Spacebar	29 (F029)
5	2E (F02E)	Alt (right)	E011 (E0F011)
6	36 (F036)	Windows (right)	E027 (E0F027)
7	3D (F03D)	Menus	E02F (E0F02F)
8	3E (F03E)	Ctrl (right)	E014 (E0F014)
9	46 (F046)	Insert	E070 (E0F070)
0	45 (F045)	Home	E06C (E0F06C)
-	4E (F04E)	Page Up	E07D (E0F07D)
=	55 (F055)	Delete	E071 (E0F071)
Backspace	66 (F066)	End	E069 (E0F069)
Tab	0D (F00D)	Page Down	E07A (E0F07A)
Q	15 (F015)	Up Arrow	E075 (E0F075)
W	1D (F01D)	Left Arrow	E06B (E0F06B)
E	24 (F024)	Down Arrow	E072 (E0F072)
R	2D (F02D)	Right Arrow	E074 (E0F074)
T	2C (F02C)	Num Lock	77 (F077)
Y	35 (F035)	/	E04A (E0F04A)
U	3C (F03C)	*	7C (F07C)
I	43 (F043)	-	7B (F07B)
O	44 (F044)	7	6C (F06C)
P	4D (F04D)	8	75 (F075)
[	54 (F054)	9	7D (F07D)
]	5B (F05B)	+	79 (F079)
\	5D (F05D)	4	6B (F06B)

Caps Lock	58 (F058)	5	73 (F073)
A	1C (F01C)	6	74 (F074)
S	1B (F01B)	1	69 (F069)
D	23 (F023)	2	72 (F072)
F	2B (F02B)	3	7A (F07A)
G	34 (F034)	0	70 (F070)
H	33 (F033)	.	71 (F071)
J	3B (F03B)	Enter	E05A (E0F05A)
