

– APPENDIX F –

IKBD SCAN CODES

IKBD Scan Codes

The **AES**, **VDI**, and **BIOS**, all contain functions which return scan codes from the Intelligent Keyboard Controller (**IKBD**). These scan codes can be used to determine exactly which key was struck (not simply the ASCII value).

One thing that must be considered when relying on scan codes is that they identify a physical vector on the keyboard, not a key definition. The scancode for a letter on an American keyboard, for instance, may be different than the scancode for the same letter on a German keyboard. The **XBIOS** function **Keytbl()** can be used to look up the ASCII value assigned to a scancode to ensure that keystrokes are correctly processed.

Scancodes for keyboard modifiers (**SHIFT**, **ALT**, etc.) are never returned by an OS call. However, when handling the **IKBD** directly, the following scancodes may be encountered:

Key	Scancode
Left-Shift	42 (0x2A)
Right-Shift	54 (0x36)
Control	29 (0x1D)
Alternate	56 (0x38)
Caps Lock	58 (0x3A)

The values shown in the following table contain the **IKBD** scancode of each keyboard key in the high **BYTE** and the ASCII code in the low **BYTE**. Keys with no corresponding ASCII value will always have zero as the low byte. These values are valid for all Atari computers with US keyboards:

Key	Unshifted	Key	Shifted	w/CTRL	w/ALT
a	0x1E61	A	0x1E41	0x1E01	0x1E00
b	0x3062	B	0x3042	0x3002	0x3000
c	0x2E63	C	0x2E43	0x2E03	0x2E00
d	0x2064	D	0x2044	0x2004	0x2000
e	0x1265	E	0x1245	0x1205	0x1200
f	0x2166	F	0x2146	0x2106	0x2100
g	0x2267	G	0x2247	0x2207	0x2200
h	0x2368	H	0x2348	0x2308	0x2300
i	0x1769	I	0x1749	0x1709	0x1700
j	0x246A	J	0x244A	0x240A	0x2400
k	0x256B	K	0x254B	0x250B	0x2500
l	0x266C	L	0x264C	0x260C	0x2600
m	0x326D	M	0x324D	0x320D	0x3200
n	0x316E	N	0x314E	0x310E	0x3100
o	0x186F	O	0x184F	0x180F	0x1800
p	0x1970	P	0x1950	0x1910	0x1900
q	0x1071	Q	0x1051	0x1011	0x1000
r	0x1372	R	0x1352	0x1312	0x1300
s	0x1F73	S	0x1F53	0x1F13	0x1F00
t	0x1474	T	0x1454	0x1414	0x1400

F.4 – IKBD Scan Codes

Key	Unshifted	Key	Shifted	w/CTRL	w/ALT
u	0x1675	U	0x1655	0x1615	0x1600
v	0x2F76	V	0x2F56	0x2F16	0x2F00
w	0x1177	W	0x1157	0x1117	0x1100
x	0x2D78	X	0x2D58	0x2D18	0x2D00
y	0x1579	Y	0x1559	0x1519	0x1500
z	0x2C7A	Z	0x2C5A	0x2C1A	0x2C00
1	0x0231	!	0x0221	0x0211	0x7800
2	0x0332	@	0x0340	0x0300	0x7900
3	0x0433	#	0x0423	0x0413	0x7A00
4	0x0534	\$	0x0524	0x0514	0x7B00
5	0x0635	%	0x0625	0x0615	0x7C00
6	0x0736	^	0x075E	0x071E	0x7D00
7	0x0837	&	0x0826	0x0817	0x7E00
8	0x0938	*	0x092A	0x0918	0x7F00
9	0x0A39	(	0x0A28	0x0A19	0x8000
0	0x0B30	)	0x0B29	0x0B10	0x8100
-	0x0C2D	_	0x0C5F	0x0C1F	0x8200
=	0x0D3D	+	0x0D2B	0x0D1D	0x8300
`	0x2960	~	0x297E	0x2900	0x2960
\	0x2B5C	|	0x2B7C	0x2B1C	0x2B5C
[	0x1A5B	{	0x1A7B	0x1A1B	0x1A5B
]	0x1B5D	}	0x1B7D	0x1B1D	0x1B5D
;	0x273B	:	0x273A	0x271B	0x273B
'	0x2827	"	0x2822	0x2807	0x2827
,	0x332C	<	0x333C	0x330C	0x332C
.	0x342E	>	0x343E	0x340E	0x342E
/	0x352F	?	0x353F	0x250F	0x352E
SPACE	0x3920		0x3920	0x3900	0x3920
ESC	0x011B		0x011B	0x011B	0x011B
BKSP	0x0E08		0x0E08	0x0E08	0x0E08
DEL	0x537F		0x537F	0x531F	0x537F
RETURN	0x1C0D		0x1C0D	0x1C0A	0x1C0D
TAB	0x0F09		0x0F09	0x0F09	0x0F09
Nmpad (	0x6328		0x6328	0x6308	0x6328
Nmpad)	0x6429		0x6429	0x6409	0x6429
Nmpad /	0x652F		0x652F	0x650F	0x652F
Nmpad *	0x662A		0x662A	0x660A	0x662A
Nmpad _	0x4A2D		0x4A2D	0x4A1F	0x4A2D
Nmpad +	0x4E2B		0x4E2B	0x3E0B	0x4E2B
Nmpad .	0x712E		0x712E	0x710E	0x712E
Nmpad ENTER	0x720D		0x720D	0x720A	0x720D
Nmpad 0	0x7030		0x7030	0x7010	0x7030 ¹
Nmpad 1	0x6D31		0x6D31	0x6D11	0x6D31 ¹
Nmpad 2	0x6E32		0x6E32	0x6E00	0x6E32 ¹
Nmpad 3	0x6F33		0x6F33	0x6F13	0x6F33 ¹
Nmpad 4	0x6A34		0x6A34	0x6A14	0x6A34 ¹
Nmpad 5	0x6B35		0x6B35	0x6B15	0x6B35 ¹
Nmpad 6	0x6C36		0x6C36	0x6C1E	0x6C36 ¹

¹Atari computers with TOS 2.0 or higher do not generate scancodes for the ALT-Numeric Keypad numbers. Instead they allow the user to enter any key by holding ALT while typing the ASCII code number and then releasing ALT to generate the keypress.

Key	Unshifted	Key	Shifted	w/CTRL	w/ALT
Nmpad 7	0x6737		0x6737	0x6717	0x6737 ¹
Nmpad 8	0x6838		0x6838	0x6818	0x6838 ¹
Nmpad 9	0x6939		0x6939	0x6919	0x6939 ¹
HELP	0x6200		0x6200	0x6200	Alt-Help ²
UNDO	0x6100		0x6100	0x6100	0x6100
INSERT	0x5200		0x5230	0x5200	Left Mouse Button ³
CLR/ HOME	0x4700		0x4737	0x7700	Right Mouse Button ³
UP-ARROW	0x4800		0x4838	0x4800	Mouse Up ³
DOWN-ARROW	0x5000		0x5032	0x5000	Mouse Down ³
LEFT-ARROW	0x4B00		0x4B34	0x7300	Mouse Left ³
RIGHT-ARROW	0x4D00		0x4D36	0x7400	Mouse Right ³
F1	0x3B00	F11	0x5400	0x3B00	0x3B00
F2	0x3C00	F12	0x5500	0x3C00	0x3C00
F3	0x3D00	F13	0x5600	0x3D00	0x3D00
F4	0x3E00	F14	0x5700	0x3E00	0x3E00
F5	0x3F00	F15	0x5800	0x3F00	0x3F00
F6	0x4000	F16	0x5900	0x4000	0x4000
F7	0x4100	F17	0x5A00	0x4100	0x4100
F8	0x4200	F18	0x5B00	0x4200	0x4200
F9	0x4300	F19	0x5C00	0x4300	0x4300
F10	0x4400	F20	0x5D00	0x4400	0x4400

²This key does not generate a keycode, rather it triggers the screen dump interrupt.

³ Keycodes marked by an asterisk are mouse-equivalent keys and generate mouse events rather than keycodes.