SEGA SATURN TECHNICAL BULLETIN #44
(PRELIMINARY)

To: **Sega and Third Party Developers**

From: **Developer Technical Support**

Date: **July 1, 1996**

Re: **Shuttle Mouse Data Format Ver. 1.00**

- **Table 1.1 Data Formats**

	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
SATURN Peripheral ID	1	1	1	0	0	0	1	1
1st Data	Y Over	X Over	Y Sign	X Sign	Start	Middle	Right	Left
2nd Data	XD7	XD6	XD5	XD4	XD3	XD2	XD1	XD0
3rd Data	YD7	YD6	YD5	YD4	YD3	YD2	YD1	YD0

- Character code for corresponding peripheral: Mouse = "M"
- Saturn peripheral ID = E3H
  - Saturn peripheral type: EH
  - Data size: 3H (3 bytes)
- Description of data
  - X Over, Y Over..... 0: X and Y values (D7~D0) are valid
    1: Data overflow (0~255 exceeded)
  - X Sign, Y Sign..... 0: X and Y values (D7~D0) are positive
    1: X and Y values (D7~D0) are negative
  - XD7~XD0, YD7~YD0..... Data for amount of movement (relative value)
  - Middle, Right, Left, Start..... Changes to 1 when button is pressed.

- **Table 1.2 Relationship between Amount of Movement (D7~D0) and Sign and Over Bits**

Amount of Actual Movement	-257 or less	-256	-255	...	-2	-1	+0	+1	+2	...	+254	+255	+256 or more
D7~D0 Value	xxH	00H	01H	...	FEH	FFH	00H	01H	02H	...	FEH	FFH	xxH
Y/X Sign	1	1	1	...	1	1	0	0	0	...	0	0	0
Y/X Over	1	0	0	...	0	0	0	0	0	...	0	0	1

Notes *1 D7 through D0 is not signed. Pay attention to changes in the Y and Y Over bits and X and Y Sign bits when calculating the amount of movement.

*2 When the Y and X Over bits are set, the amount of movement (D7~D0) becomes undefined, so always check these bits.

- Direction of mouse movement
  - The signs in the figure indicate whether the Sign flag is on or off.
  - The arrows indicate the direction of mouse movement.