

1985 – Xerox Daybreak Mouse

In 1985 Xerox released the official successor of its Xerox Star 8010 Information System (the world first office computer with window-based interface from 1981) – the 6085 Professional Computer System workstation, also known as Daybreak. The computer came with the 1.0 version of the ViewPoint GUI (a graphical shell based on the Star software) [1, 2]. Among other improvements, these computers received an updated mouse.



Figure 1: Xerox Daybreak Mouse

Exterior

Xerox Daybreak mouse is not very much different from the original optical mouse of Xerox Star [3, 4]. The upper part made of beige plastic is derived from a parallelepiped more or less. The topcase has shape identical to the mouse of Xerox Star: it widens toward the bottom, its front and back sides are convex and noticeably inclined, and vertical edges are rounded, substantially reducing the association with a “box” (fig. 2). On the upper side of the case there are two large, oblong buttons made of darker plastic. As with Xerox Star, “SELECT” and “ADJUST” buttons are used to make and adjust a selection [5].



Figure 2: Xerox Daybreak Mouse, top and bottom views

In distinction of Star mouse, positions of both buttons are moved towards the edges of the body, making it possible to create a variety of this mouse with a third button in between (Xerox Star had no three-button option in intention to make the mouse less confusing, but eventually third button turned out to be useful for engineering and scientific software systems).

The bottom of the mouse is black, it features 3 plastic feet, the printed mouse model number, and a hole with lenses for the LEDs and the optical sensor. Mouse cable and jack housing are colored to match the buttons. The cable has no mechanical protection of it's exit from the mouse body.



Figure 3: Xerox Daybreak Mouse on a reconstructed pad

A 4×4 size scanning elements matrix is responsible for reading color inhomogeneities at move, so the mouse required either a pad with a specially designed pattern (an array of light hexagons on a dark field) or any surface with similar alternating light and dark spots, such as denim. The pad is easily reproducible by photocopying, and, more to say, the original Star mouse pad was a paper, sold in packs of 25 sheets [4, 7]. A reconstructed pad can be seen in fig. 3.

Size

The mouse could have been smaller and lower in size if it had not used the standard Xerox Star mouse body, developed for the uniformly looking mechanical and optical mice. As it is, Xerox Star mouse is rather small than medium, and visually it looks even smaller (figure 4).

Ergonomics

In terms of ergonomics and appearance, the mouse is minimalist. The user experience of Xerox Star mice (including the Daybreak one) is certainly less affected by the “rectangularity” of the case as it was with the previous Xerox Alto mouse. Convex oblong buttons, located within the reach of the fingers, are still good, and the inclined side of the case closest to the user even provides some comfort for palm (fig. 5) – at least, more than a lot of mice of 1980s did (of course, lower body would make it even more comfortable). Also, the small body width and its noticeable height, as far as small weight of the device, allow easily carrying the mouse to another part of the mouse pad by holding it with fingers on the sides. This could be handy when the mechanical unit get's stuck for a while because

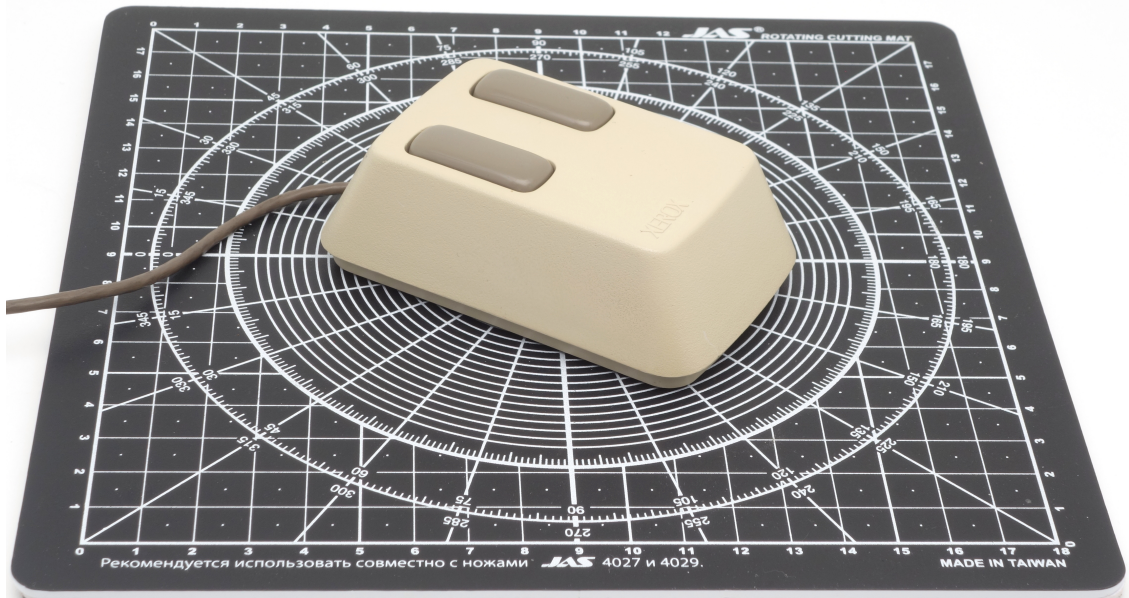


Figure 4: Xerox Daybreak Mouse on a graduated pad with a grid step of 1 cm

of some piece of collected derbi – but not very much needed taking into account that the mouse is optical, and the A4 sheet of paper plays as a really large mouse pad.

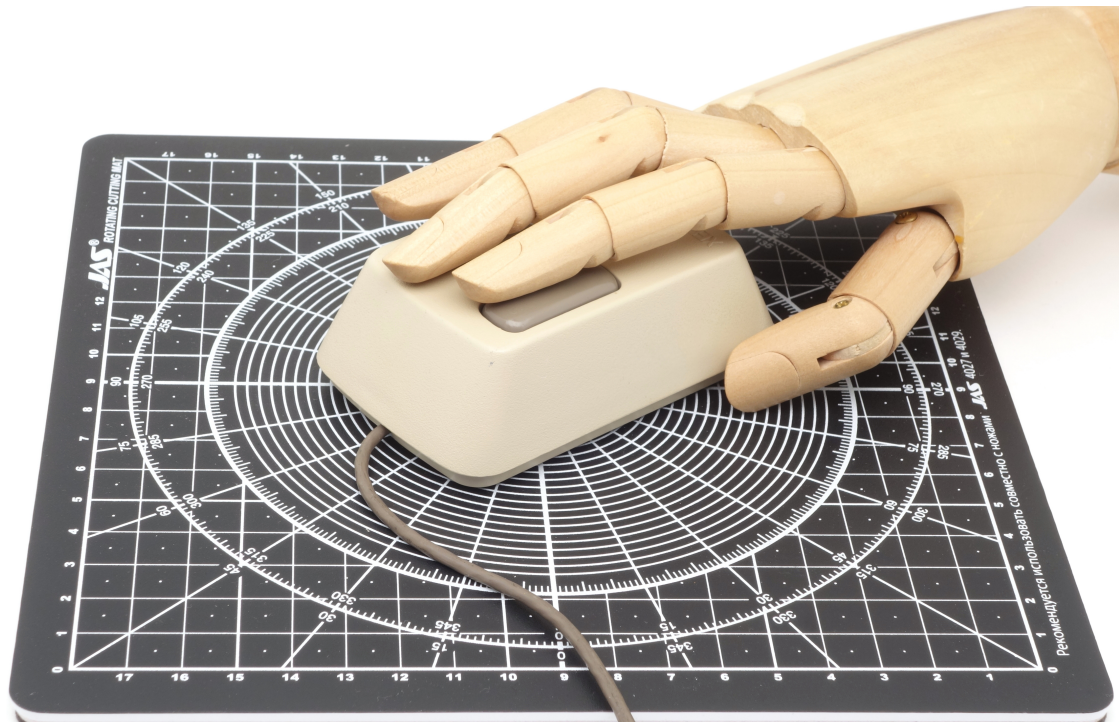


Figure 5: Xerox Daybreak Mouse with a human hand model

Connectivity

Like all Xerox mice, Daybreak mouse has a quadrature interface [9, p. 177]. Following the original Xerox Star design, the mouse is connected to the computer via the Daybreak keyboard, which has a dedicated mouse socket on its back. But, differently from the previous generations of Xerox computers, instead of D-SUB 15 or 9 pin connector, it features a proprietary miniaturized jack (fig. 1). The socket on the keyboard PCB, though, shows that the difference is more cosmetic than functional: technically

it's still a 9-pin socket with the checkerboard pins order same as D-SUB [6, 8].

Internal design

Mouse internals are shown in figure 6, where you can see the custom chip in a transparent injection-moulded plastic package [10], which contains the scanning matrix, and also does some initial signal processing. The printed circuit board is raised above the base, and angle-directed LEDs placed under are illuminating the mouse pad. It is interesting to note, that for unification purposes with its 3-button sibling, the Daybreak mouse cable includes wires for all possible buttons, and the third buttons's wire (green in fig. 6) is even carefully soldered to the circuit board.

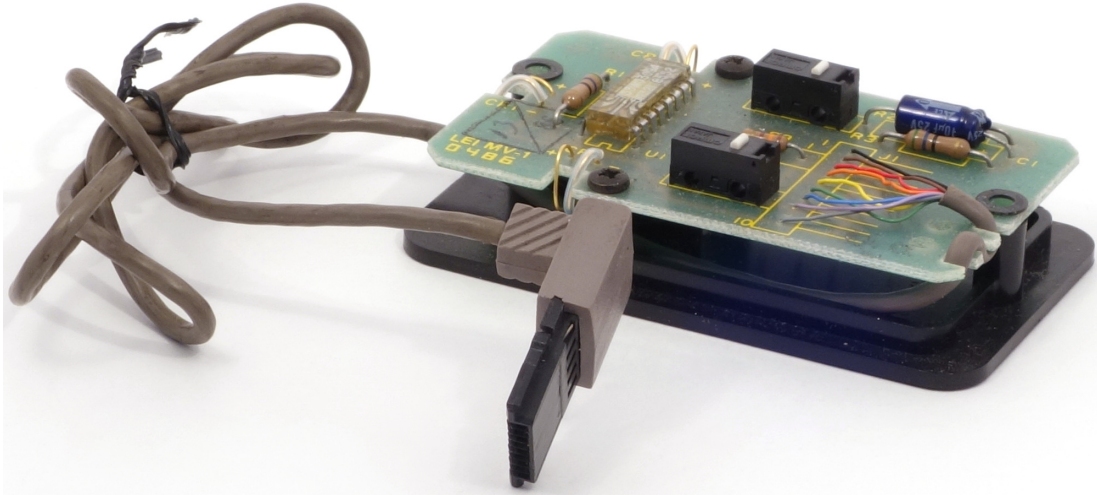


Figure 6: Xerox Daybreak Mouse disassembled

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