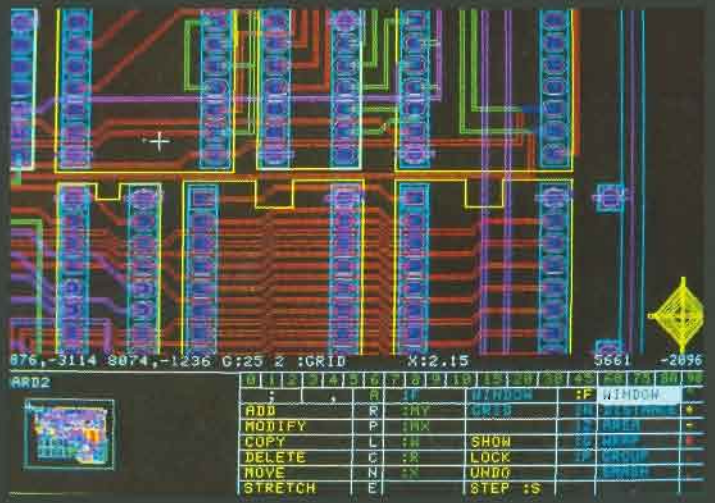
HP Series 200, Model 36C

Introducing An HP Personal Computer-Aided Design Workstation

"For Each and Every Engineer"



Printed Circuit Layout

"We produce proprietary design software for use throughout HP. Our charter is to increase the productivity of all HP engineers – not just an elite few. The design workstation should be as handy as the engineer's tool kit; there when he needs it. The Model 36C is what we have been asking for."

Merrill Brooksby, Manager
HP Design Aids

HEWLETT PACKARD

A Compact, Color Workstation An Engineer Can Personalize and Use

The new HP Series 200, Model 36C offers the individual engineer the ultimate design aid – a compact, personal workstation with the power of the 16/32 bit processor and sophisticated color graphics – all at a price the department budget can justify!

The new HP personal CAD system offers higher performance at a fraction of the cost of other PCAD systems available on the market today. And considering the high productivity return offered by this personal system, no engineer can afford to be without one.

The Model 36C personal workstation combines the clarity of color with comprehensive solutions in electrical and mechanical engineering applications, and places them where they're most essential – on your desk. With the color Model 36C, you can locally control the intricacies of design in PC layouts, IC circuit designs, drafting, schematics, finite element analysis or noise and vibration analysis.

And the Model 36C doubles as an all-purpose workstation to easily meet engineering management demands. Use the Model 36C to turn extra "work" – presentations, project reports or documentation – into "computer-aided work". Turn technical data into color graphics. The Model 36C allows you to preview your message as it will appear before taking the time to plot it out for overhead transparencies. Or photograph color 35mm slides directly off the CRT.

Color Enhancements

Choose from a palette of 4,096 colors through a programmable color map. Display up to 16 colors at once with four graphics memory planes. Or create realistic image reproductions through detailed gray shading.

And you can produce well-documented, sophisticated graphics in a shorter period of time through HP's powerful, enhanced BASIC or Pascal graphics language extensions. For example, one progam line will draw a set of X-Y axes, or a rectangle, polygon or circle with optional color fill and edge color.

Integrated HP Solution

A complete HP solution, the Model 36C configured system includes: BASIC, BASIC Extensions and Pascal; 640K bytes RAM, two built-in 5¼" flexible disc drives; internal HP-IB; and 80-character CRT with 512 x 390 graphics resolution.

Up to 2 megabytes of RAM – which can be increased to 7.4 megabytes with expanders – provide the high performance you require to handle multiple graphic images and large graphics data bases.

Through the HP Shared Resource Management network, the Model 36C can be linked with other HP computers to share data and program files, and costly peripherals. Other models include: the HP Series 200 Model 36A/S monochromatic engineering workstations; Model 20/26A/S instrument controllers; Model 16 personal technical computers; as well as the 32-bit HP 9000 family and the 9845C desktop computers.

The Experts' Choice

Hewlett-Packard offers one of the largest lines of computing systems, peripherals and instruments available on the market today. Nearly a tenth of HP sales revenue is reinvested in research and development.

To find out just what importance the Model 36C plays in the overall HP strategic effort, we went to the experts – the HP R & D engineers responsible for circuit design, software development and graphics.

Increasing the individual engineer's productivity is the universal goal, and in the HP engineers' on-going market investigation, the HP Model 36C comes out on top in regards to performance, graphics capability, reliability and price. The HP Model 36C is their choice – an affordable solution each engineer can personalize and use.

The HP Model 36C. Not a luxury, but a proven gain in productivity. Here are samples of what the HP engineers had to say ...

hp museum

At Hewlett-Packard, we welcome the HP Model 36C for ...

SOFTWARE ENGINEERING

Color Less Tedious

"Our charter is to create software technology which is powerful, yet easy-to-use. Since color improves the human interface for the user running a program, why not use color when writing the software? Color, at a little extra cost, is preferable to a multitude of black and white fonts to distinguish different kinds of information. The color Model 36C will open up the possibility of employing color to encode commands, error messages, interrupts, computational results ..."

Ira Goldstein, Manager
Applications Technology
HP Labs

ENGINEERING MANAGEMENT GRAPHICS

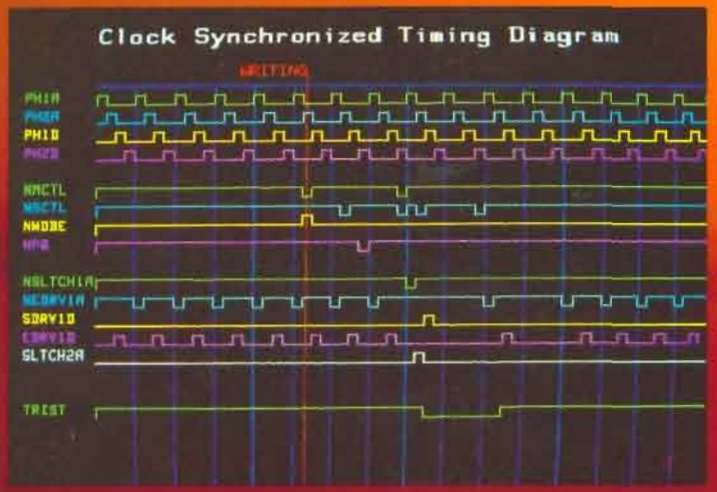
Subtle Color Changes

"We have conducted extensive research on which colors have what effect in graphics. A manager doesn't want stark, bold contrasts to depict a subtle change. He'd prefer slightly different colors. The Model 36C's gray scale allows you to control the impact of your message gradually through a lot of shades of one color. Plus its color map gives you a selection of colors, and allows you to match our plotter pen colors exactly."

Ideal Human Interface

"With a black and white system, you run the risk of unintentionally changing colors or losing track of what colors you designated. The Model 36C allows you to preview how the message you want to convey will look before you take time to plot out the hardcopy. The newcomer to computer graphics can comfortably produce designs without the assistance of a graphics artist."

Bob Boeller, Manager
Research and Development
HP Graphics Peripherals



You can create a flowchart and produce logic equations, do timing diagrams and circuit simulations, and design chip layouts – right at your desk – with the new Model 36C.

Technical Specifications At A Glance

Processor:	MC 68000, 16/32-bit architecture, 8 MHz clock rate
Memory:	2M bytes, 2.4 Mbyte w/optional bus expander
Mass Storage:	Dual 270K byte 5½" flexible disc drives
Interfaces:	Built-in HP-IB, optional RS-232, GPIO, DMA, datacomm, RGB, BCD, disc interface
Languages:	BASIC and Pascal w/Assembly
Graphics:	12" (310mm), 512 x 390 @ 50/60 Hz non-interlaced 4 bit/pixel w/4096 color palette

IC CIRCUIT DESIGN

Flexible

"The 36C's color map gives us the flexibility we need to define circuit intersections as we choose without jumping through loops in our software; to do area fills without the area washing out; and to overlay different colors to verify correctness, the same way we use color keys today."

16 Times More Information

"Color is essential in design. We've proven through experiment that you can display at least 16 times more information by using color than black and white. If you take two separate screens – one color and one black and white – and reduce them down, the black and white image becomes unreadable while you can still clearly recognize what's going on with the color. We feel the 512 x 390 color screen gives us the same effective resolution as a 2048 x 1560 monochromatic display."

Merrill Brooksby, Manager
HP Design Aids

HP Networking

"What we will have is a number of Model 36Cs on the front end, and through the HP Shared Resource Management network, they will be talking to the 32-bit HP 9000 in the background. We'll do all our editing on the Model 36s, and use the 32-bit to do the real big number crunching such as simulation and design rule checking."

Color Map

"Color is a must for us. In fact, being able to specify what the intersection of mask layers looks like is important. Typically, with IC design you have to have the layers line up on top of each other. When you look at a layout of all the masks, you're looking eight or nine layers deep. The peripheral color monitor we currently use has only six colors, so you end up with dotted lines or something else to give you another dimension. The Model 36C color map solves that problem."

Craig Mortensen/Cliff Lob
R & D Managers
NMOS III Chip Development

COMMERCIAL ART

Easy-to-Use

"It took one of our graphics designers as little as twenty minutes to learn the basics. To select one color from the palette of 4,096, you can use the rotary control knob to define the hue, saturation and luminosity, right before your eyes. And the Model 36C gives you an enormous amount of room to work in without "maxing out" the computer."

Paul Guerrero, Manager
Graphics Design
HP Desktop Computer Division

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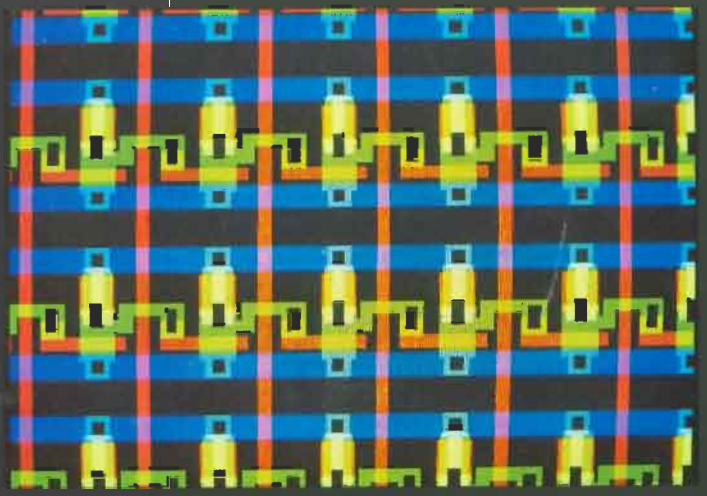

Integrated Circuit Design

"I/C circuit design is a real-time experience so response time is critical. We are presently producing 500,000-transistor chips with the trend toward more complexity. Add to that the limited number of engineering graduates each year, and you'll see why available engineers must be even more productive. A dedicated workstation is the solution. Our objective is to have a design workstation at each engineer's desk, and the Model 36C appears to be the ideal candidate."

Craig Mortensen/Cliff Lob
R & D Managers
NMOS III Development

Software Development

"The emphasis within HP Labs, under the direction of Joel Birnbaum, is on future workstation design and network development. Within my Applications Technology Group, we are developing an advanced working environment for the software engineer. We presently have 26 Model 36s – one for every engineer – linked through the Shared Resource Management network. Up until now, a peripheral display has been used to obtain color for each engineer. The Model 36C offers a less expensive and more integrated solution."

Ira Goldstein,
Manager Applications Technology
HP Labs

Commercial Art

"It is very expensive to buy color commercially. To turn simple black and white art into color slides, you pay $5.00 for each color designated. In the past six months, we produced four customer training classes or the equivalent of 800 slides. Had we had the Model 36C, we could have saved enough to pay for the system. With the Model 36C, you can reduce a typical two-week development time down to three hours and pay a maximum of 50 cents for the finished product – a 16-color 35mm slide."

Paul Guerrero, Manager
Graphics Design
HP Desktop Computer Division