



**ABB Inc.**

**EXHIBIT 1021**

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She contributed to the development of the firmware for the HP 2392A and is now working on terminal emulation. She is interested in terminal firmware and application software for personal computers. Michèle was born in Lyon, France and is a resident of Grenoble, France. She is married and enjoys horseback riding.

## 8 Terminal Mechanical Design

### Michel Cauzid



Michel Cauzid was born in Vouziers, France and received his diploma from the École Nationale Supérieure de Mécanique et Microtechniques in 1970. Before coming to HP in 1979, he taught mathematics in Africa as an alternative to French military service and worked in micromechanics. At HP he has been a mechanical designer for the HP 2333A Controller, the HP 3092 Terminal, and the HP 2392A. Michel's professional specialty is computer-aided design. He is a resident of Bresson, France, is married, has four sons, and enjoys hiking.

## 18 Terminal Analog Design

### Jean-Yves Chatron



Jean-Yves Chatron joined HP's Grenoble Division in 1973, where he has worked as a production engineer, a service engineer, and as an R&D engineer. He contributed to the development of the HP Interface Bus for the HP 3075A Terminal and designed the power supply for the HP 2392A. A native of Nantes, France, he received an engineering degree from the Institut Universitaire de Technologie (1972) and served in the Army as a radio communicator. He now lives near Grenoble, is married and is the father of two sons and a daughter. Outside of work, he is interested in audio electronics.

### Todd L. Russell



Todd Russell is an R&D engineer at HP's San Diego Division. Since coming to HP in 1978 he has contributed to the design of plotter products, including the HP 7090A and the HP 7550A. Todd was born in Los Angeles, California and now lives in San Diego, California with his wife and son. He is a scoutmaster and commissioner for the Boy Scouts of America and is interested in camping, softball, tennis, and church activities.

### Peter L. Ma

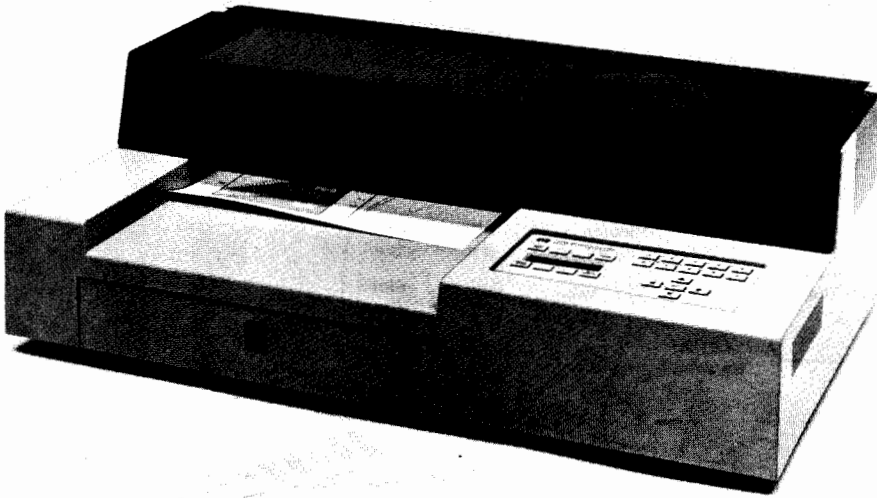


Peter Ma was born in Hong Kong and educated at the University of Washington (BSEE, 1978) and at Stanford University (MSEE, 1982). He joined HP in 1978 and designed the I/O processor system for the HP 7310A Printer and the digital circuits and gate arrays for the HP 7470A Plotter. He was the project leader

servo control system for the penlift for the HP 7550A. He is the coauthor of a November, 1981 HP Journal article on the HP 7580A. Hatem was born in Cairo, Egypt and received his BSEE degree from the University of Minnesota in 1979 and his MSEE degree

a coinventor on a patent on a bidirectional pen change mechanism. His work has also resulted in a patent application on a switchless pen sensor. Dave lives in San Diego, California, teaches a machine design course at the University of California at San Diego, and enjoys basketball and bicycling.

from Stanford University in 1974, and is interested in computer programming and firmware development. A native of San Diego, California, Tom now lives in Escondido, California, is married and has a young daughter. He likes bicycling, video engineering, and reading books to his daughter.



**Fig. 1.** *The HP 7550A 8-Pen Graphics Plotter is designed for high-throughput, unattended operation. These features allow the preparation of multiple copies of high-quality computer graphics, automated output of single charts for process monitoring, or use as a central graphics server.*

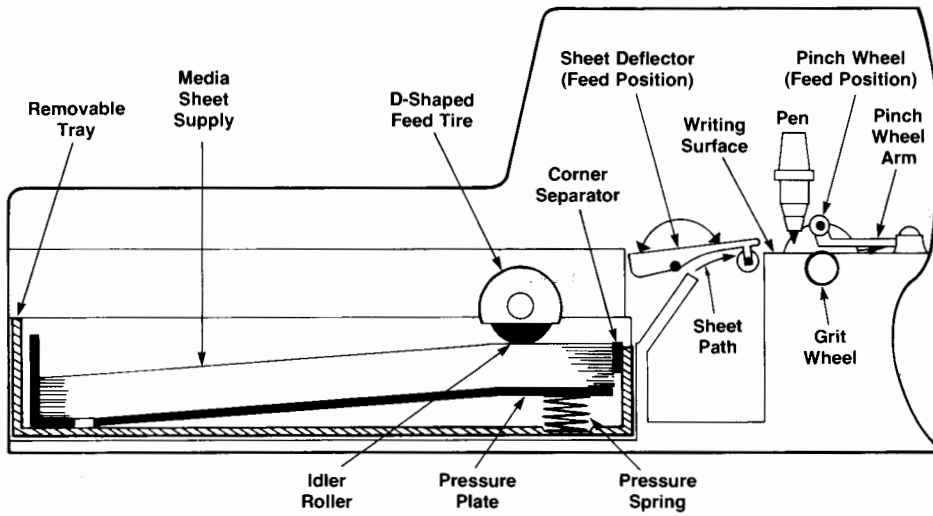
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The final major customer need addressed by the HP 7550A is for a plotter for the low-cost CAD/CAM systems available today. Users of these systems want a quality A/B-size drafting plotter with a price in agreement with the rest of their system. The HP 7550A is designed to use both polyester film and vellum paper, and liquid-ink as well as roller-ball pens. The high throughput of this plotter makes it a very good solution for producing check plots quickly,

achieve this, such as replacing analog circuitry with digital circuitry whenever possible, using large-scale integration (LSI), eliminating the need for any adjustments, and performing many functions with the same components.

The single 68000 microprocessor controls every movement in the servo motors and pen-lift mechanism from commands received through the HP-IB or RS-232-C interface. It services the front panel and rotates the carousel



**Fig. 2.** The HP 7550A Plotter's sheet-feed mechanism is similar to that of a photocopier, but with much higher alignment accuracy. It can feed up to 150 sheets without reloading.

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