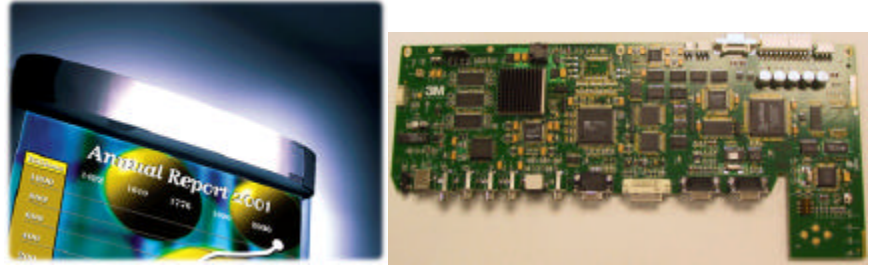




Summary

Client	3M – Visual Systems Division
Project Name	3M Display Controller Board
Industry	Business Products
Location	Austin, TX
Class of	2000
Customer Type	Repeat

It takes an innovator to know an innovator, and 3M retained Paragon to design high-quality electronics for the company's revolutionary Digital Wall Display. Paragon met the challenge and developed the prototype in record time so the DCB could be unveiled as planned at InfoComm. Paragon is working with 3M on the next generation of the DCB it originally helped design.



OVERVIEW

The Visual Systems Division of 3M turned to Paragon Innovations to produce a new Display Controller Board (DCB) after having been disappointed with the efforts of a German engineering firm. Retaining Paragon made sense because 3M and Paragon had completed the successful design of an Expansion Control Board that would be integrated with the new product.

The new DCB engagement represented a high-stakes opportunity for what is expected to become a premier product for 3M. Paragon was challenged to design and produce a prototype in an incredibly expedited timeline so that it could be showcased at a major industry show less than four months away. Paragon's team interviewed 17 3M managers and technicians, a key step in helping develop a turnkey solution and accelerating the product's time to market. As a result, 3M received a prototype that not only met the company's high expectations for quality and innovation, but did so within an extremely difficult timeline. Most important, 3M's new Digital Wall Display became one of the stars of InfoComm.

RESULTS

- Paragon assumed design control in mid-stream to produce a top-quality prototype in 16 weeks.
- Exceeded 3M's high standards of quality and innovation.
- Achieved integration with 3M's Expansion Controller Board.
- With the DCB at its core, the 3M Digital Wall Display became one of the stars of InfoComm.

www.paragoninnovations.com



972-265-6000

Client

3M

Project Name

Display Controller Board

Industry

Business Products

Location

Austin, TX

Class of

2000

Customer Type

Repeat

“ ... (Paragon has) a staff of trained and disciplined engineers able to take this kind of project on. They have a rigorous design philosophy, and that was really a critical piece for us. ”

Steve Saxe

Technical Program Manager
Visual Systems Divisionwww.paragoninnovations.com2100 10th Street, Suite 100
Plano, Texas 75074**972-265-6000****Prior Outsourcing Experience**

- Paragon designed previous Expansion Controller Board for 3M

Services Provided

- Electronic HW design
- Low Level software development
- GUI software integration
- Built prototype printed circuit boards
- Submitted design for UL and FCC approval
- Worked with contract manufacturer for DFM issues
- Coordinated technology transfer to contract manufacturer
- Provided technical support

Firsts for Client

- First time that 3M-VSD outsourced key design elements.

Firsts for Paragon

- First T.I. DLP™ project
- First hardware video processing project.

Features Suggested by Paragon

- Hardware Abstraction Layer and DFT ideas.

Target Production Size

- 5,000 per year

Hardware Features

- T.I. DLP™ projection head
- Silicon Optix Warp W1 chip
- Ultrasonic / Infrared drawing capture technology
- VGA modes / DVI / S-video / Composite video inputs
- Stereo audio input and outputs
- USB and printer interfaces
- TMDS video links
- Extensive VHDL design for FPGAs

PCB Technology

- OrCad / Allegro schematic capture / layout package
- Multiple PCBs (ex. 14 inch x 5 inch, 8 layers)

Primary Hardware Vendors

- Silicon Optix
- Analog Devices
- Lattice Semiconductor
- Hitachi
- Texas Instruments

Long-Term Results

- The hardware provides a single video platform that can be used in multiple product versions or SKUs.