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# Section 349

## Electronic Packaging & Fabrication

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Manager, Section 349



# Section Charter

- *Lead the advanced packaging engineering activities.*
- *Participate in system study and definition activities with respect to the general physical arrangement and packaging of electronic equipment for spacecraft and science instruments.*
- *Provide services in the areas of electronic equipment packaging design, fabrication and assembly and electrical cable fabrication.*
- *Provide microelectronic packaging development (along with hybrids, MCMs, chip-on-board, etc.), including design, fabrication and process development.*
- *Provide surface mount technology (SMT) packaging services, including design, fabrication and process development.*
- *Provide acquisition services of printed wiring boards, magnetics, and electronic assemblies.*
- *Establish and maintain the Laboratory design, fabrication and process standards and manuals for all flight electronic equipment and cables.*

# Section 349 Product Overview



- ***Packaging Design, Layout & Analysis***
  - ▼ *Avionics Systems Packaging Design & Analysis*
  - ▼ *Printed Wiring Board (PWB) Design*
  - ▼ *Circuit Card Assembly (CCA) design*
  - ▼ *Multi Chip Module (MCM) & Hybrid Microelectronics Design*
  
- ***Assembly and Fabrication of Prototype and Flight hardware***
  - ▼ ***Circuit Cards***
    - *Surface Mount Technology (SMT)*
    - *Hand Soldering*
  - ▼ ***Multi Chip Module and Hybrid Microelectronics***
    - *Digital, Analog, Power, & Rf Circuits*
  - ▼ ***Electronics Cables and Harness***
  - ▼ ***Precision Alignment and Photonics elements***
    - *Fiber Optics alignment and laser welding*
  
- ***Special Microdevice Assembly***
  - ▼ ***Flip Chip Bonding, Solder Bumping & BGA assembly Etc.***

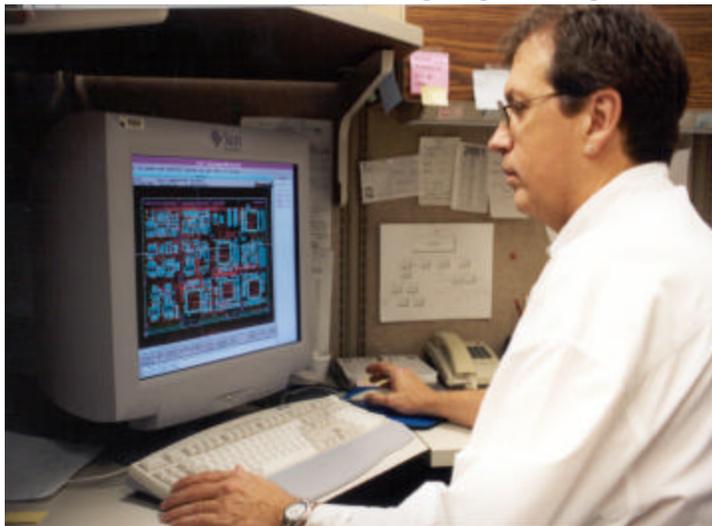
# Special Technical Facilities



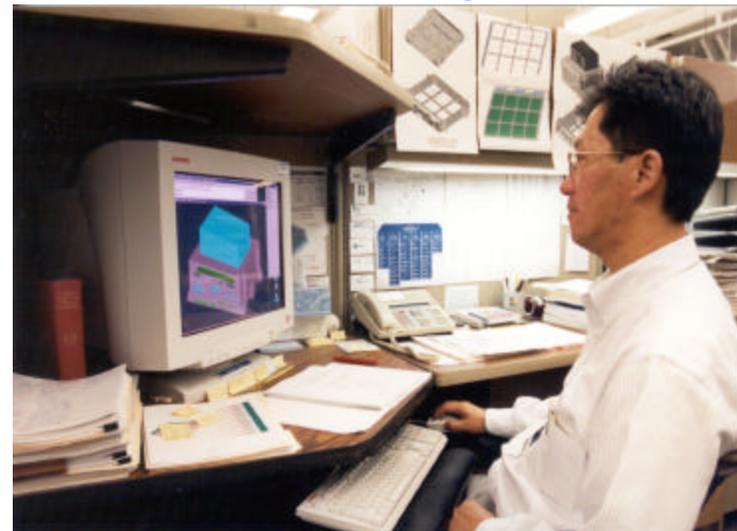
*Electronic Packaging Design*



*Chassis Design*



*Printed Wiring Board Design*



*Design Analysis*

# Special Technical Facilities



*Circuit Card Hand Soldering*

# Special Technical Facilities



*Surface Mount Technology Lab*

# Special Technical Facilities



*Cables And Harness Assembly*

# Special Technical Facilities



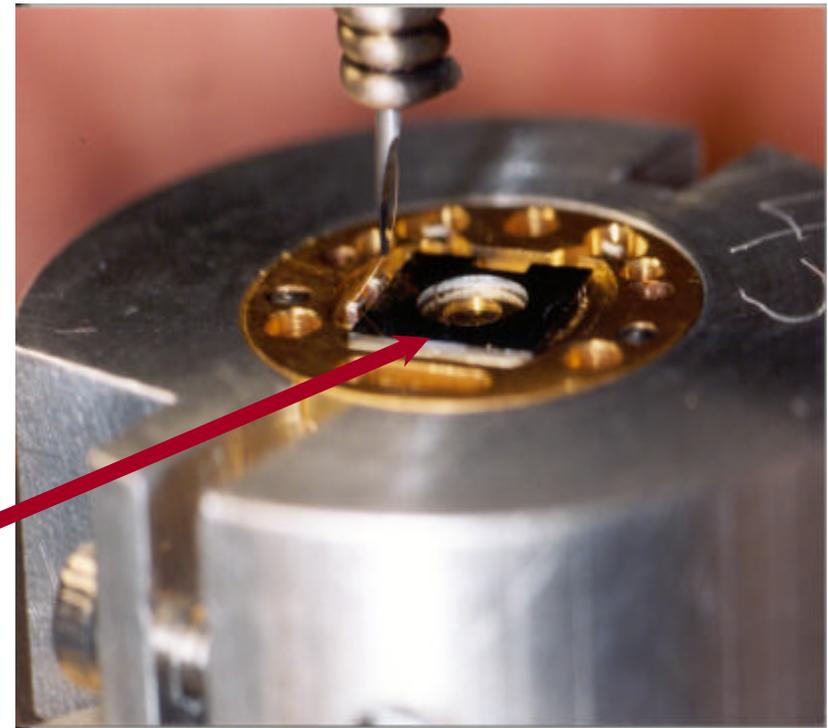
*Assembly Inspection*

# Special Technical Facilities



*Microelectronics Lab*

# Special Technical Facilities



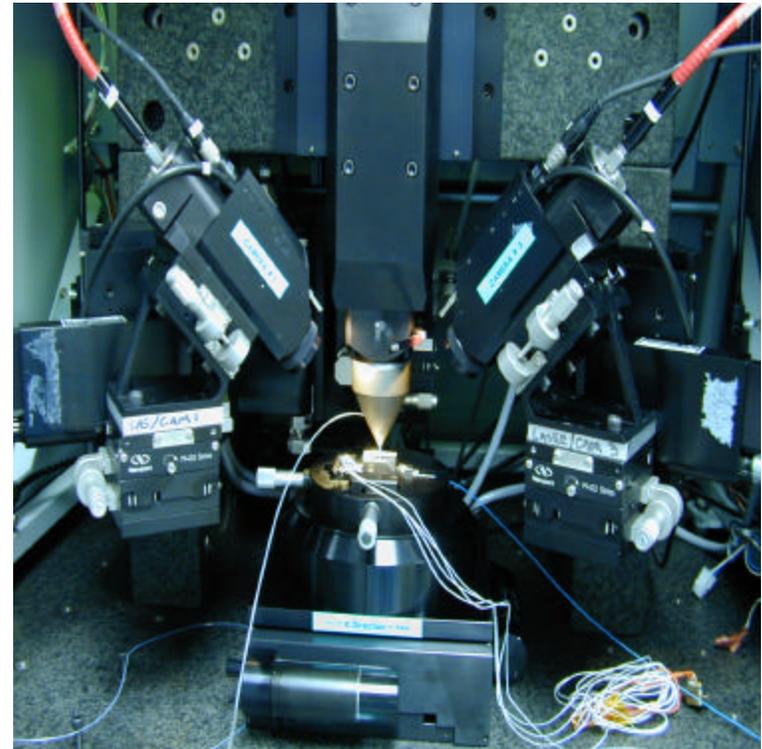
*Microelectronics Interconnect using a Wire Bonder*

*PLANK 1 Bolometer Wire Bonded*

# Special Technical Facilities



*Photronics Lab*



*Laser Welder*

# Potential Uses of Contract

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- Tasks which may be assigned to the contractor from Section 349:
  - ▼ Detailed design of electronic chassis.
  - ▼ Preparation of detailed engineering drawing package.
  - ▼ Thermal, vibration and shock analyses of design.
  - ▼ Printed Wiring Board layout and detailed design.
    - *Thermal and environmental analyses to support design.*
  - ▼ Complete electronic unit Mechanical design.

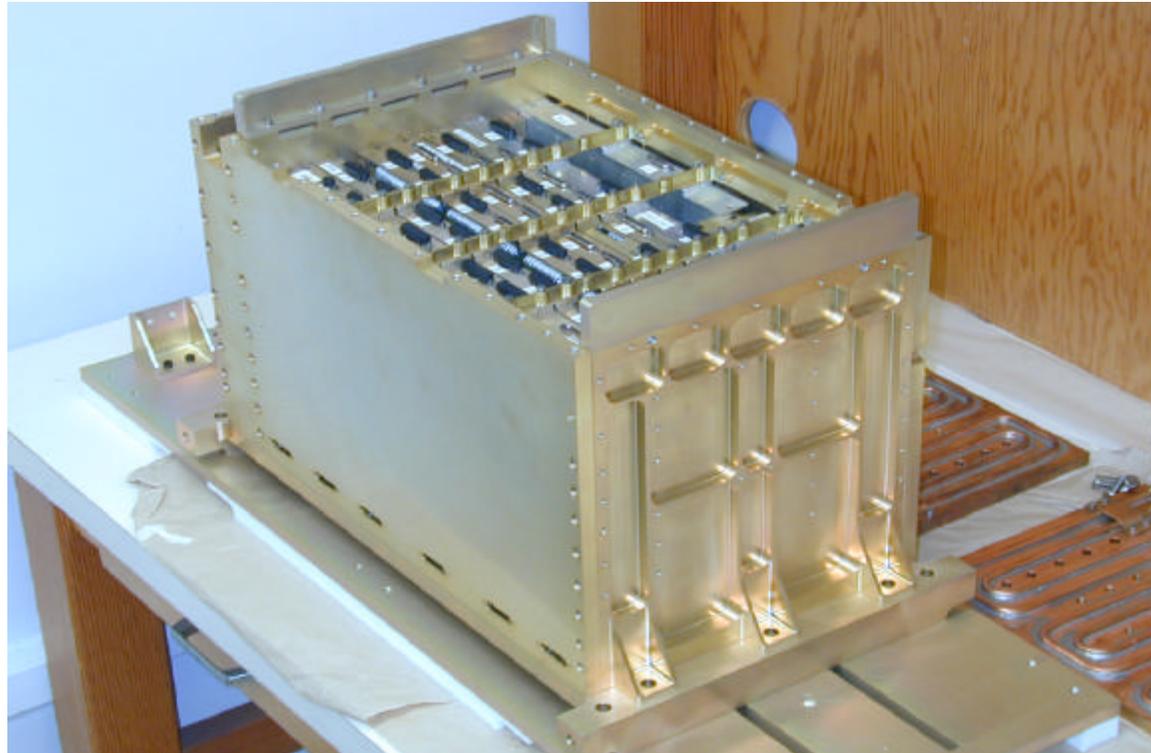
# Chassis Design



## REM Dynamic Chassis



*Mars Exploration Rover*



**With Mass Model Slices**

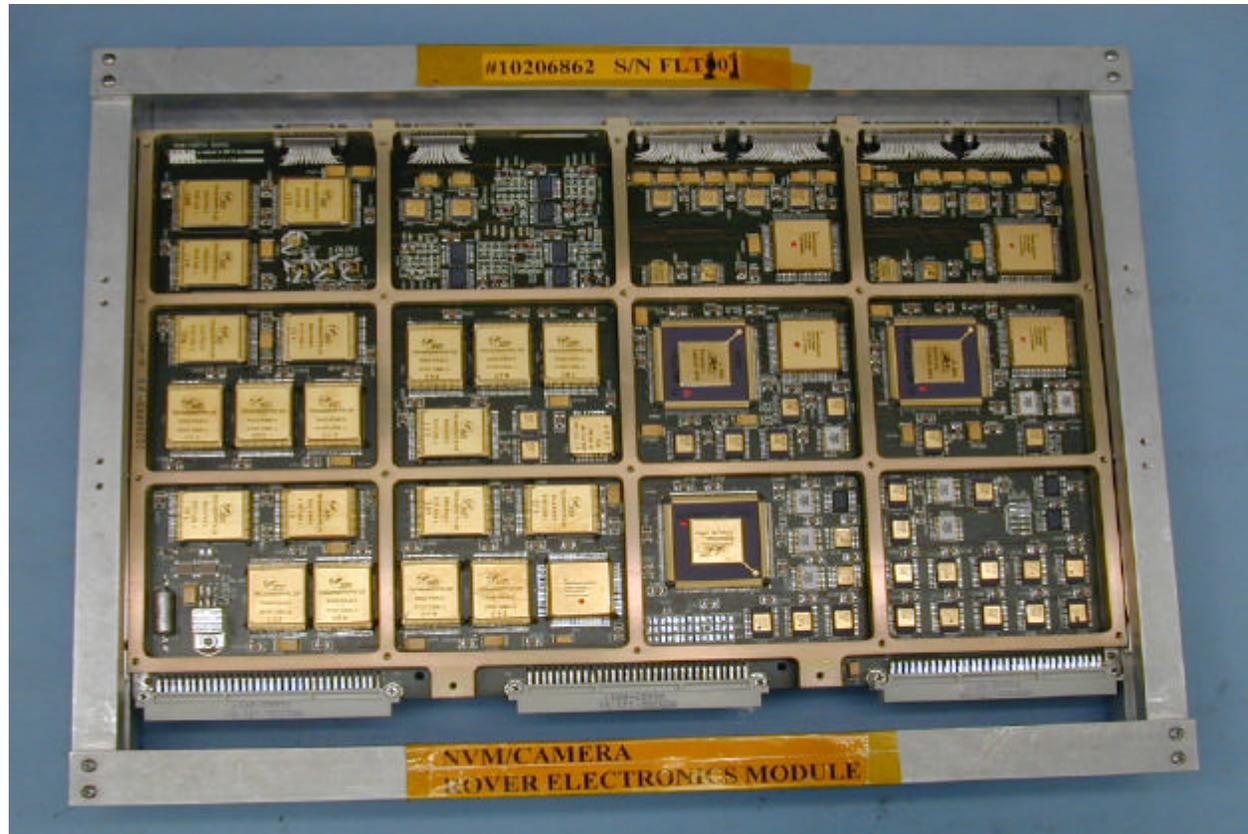
# Electronic Module Design



## REM NVMC SLICE Assembly



*Mars Exploration Rover*



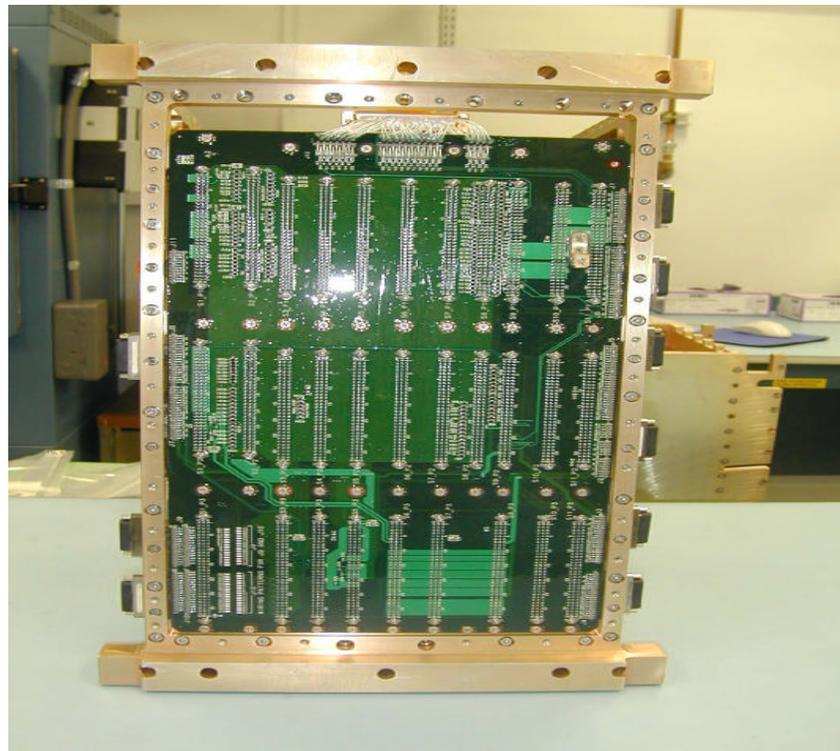
# Chassis Interconnection Design



## Back plane Assembly



*Mars Exploration Rover*



# Unit Design



## CPCU/CSID Box Assembly



*Mars Exploration Rover*

