HARDWARE DESIGN AND IMPLEMENTATION OF THE LANDING GEAR CONTROL ALGORITHM

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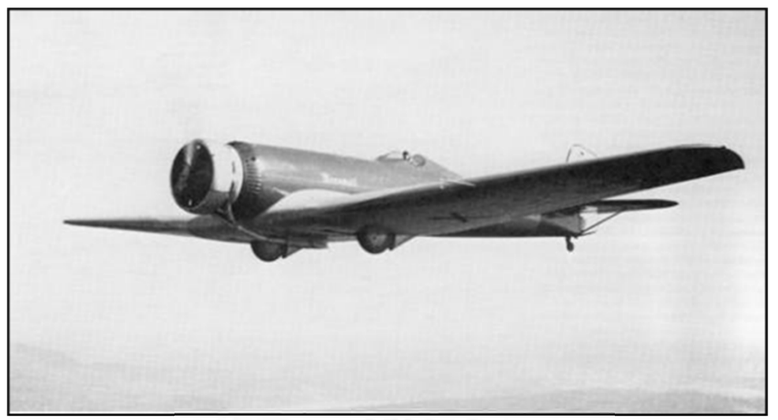
Collins Aerospace

IEEE

HISTORY OF THE RETRACTABLE LANDING GEAR

J.W. Martin K. III Kitten (Scout)



Boeing Monomail

Boeing 767

Lockheed Orion

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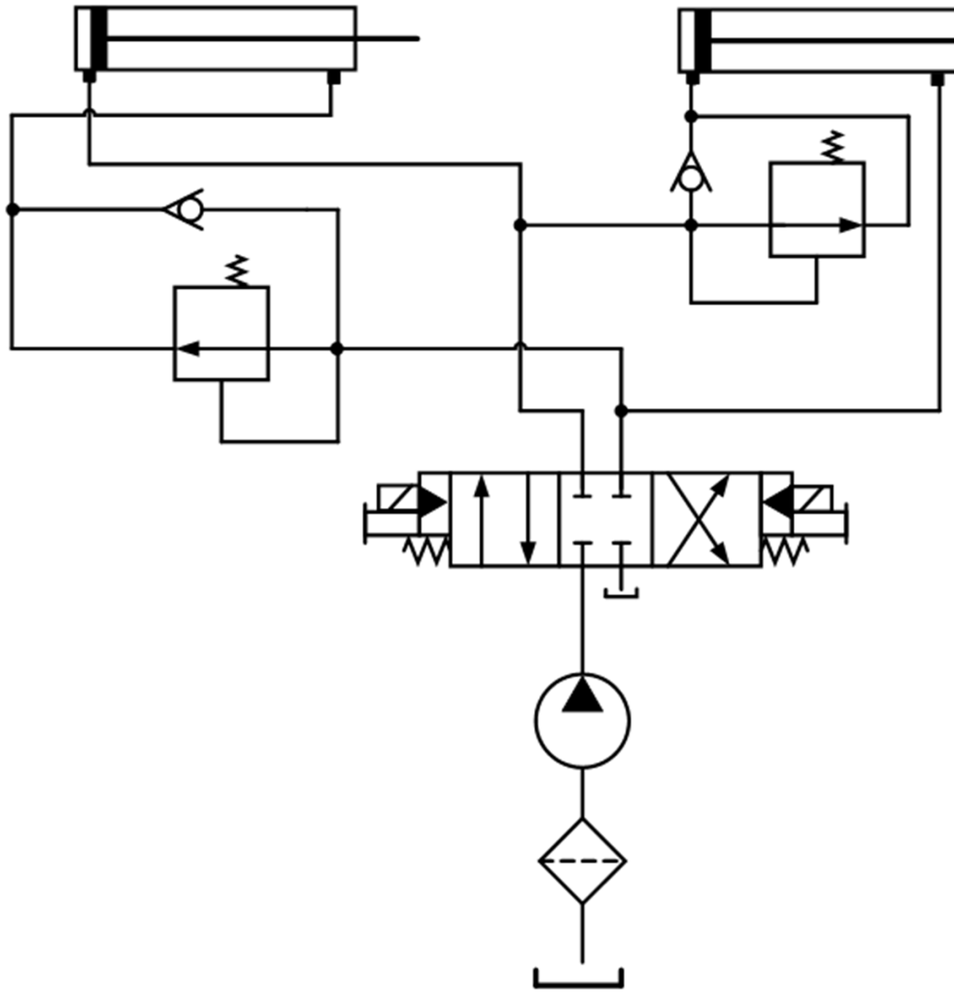
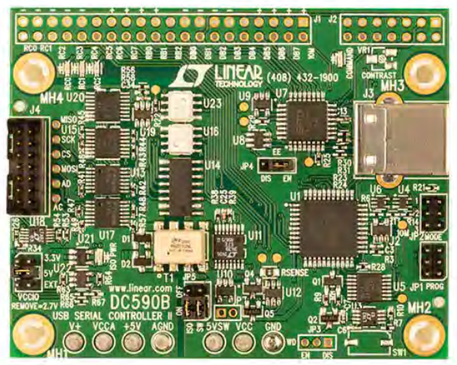
LANDING GEAR ACTUATION WITH HYDRO-MECHANICAL SEQUENCING

DOOR ACTUATION

LANDING GEAR ACTUATION





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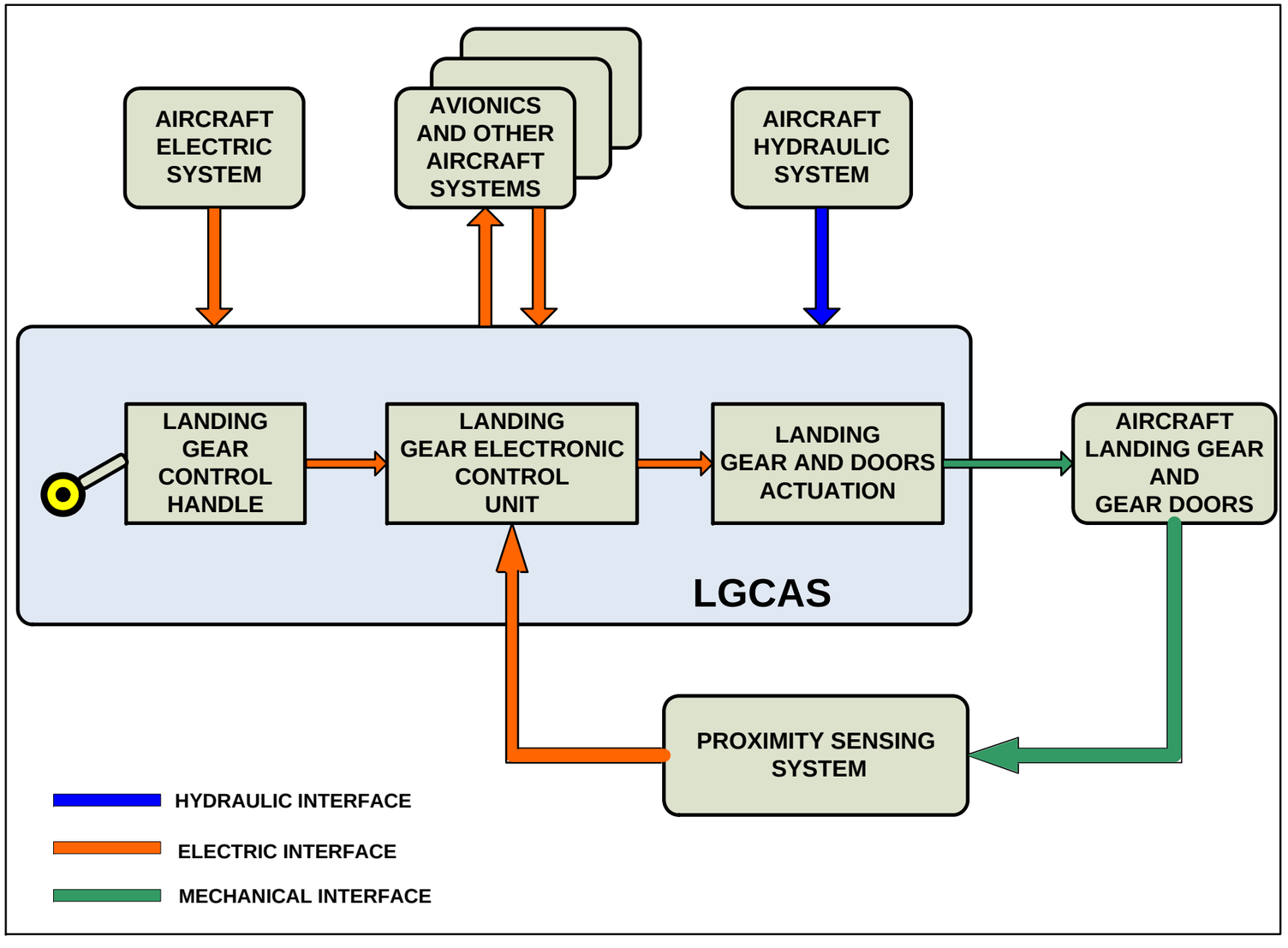
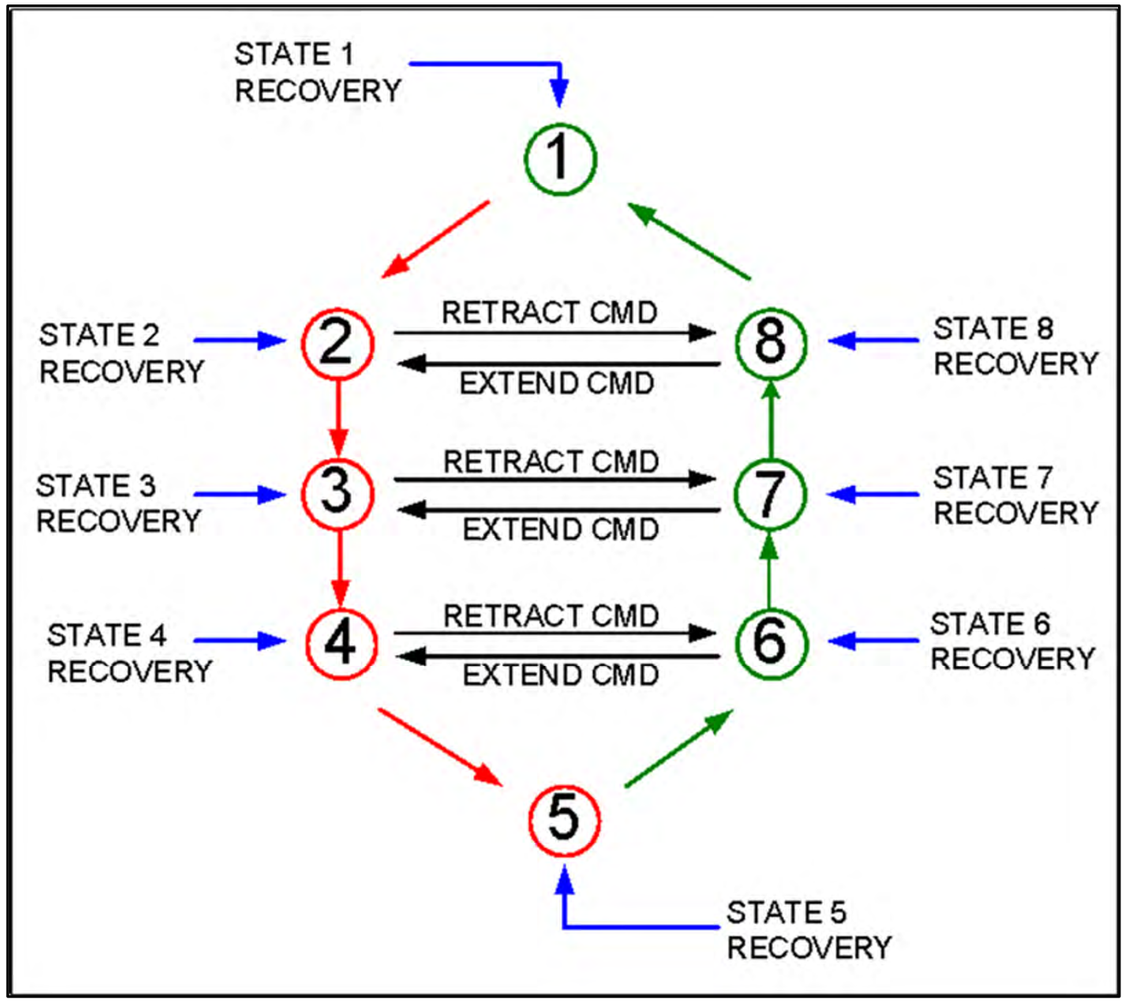
LANDING GEAR CONTROL AND ACTUATION SYSTEM



STATE MACHINE - LANDING GEAR CONTROL ALGORITHM



EXTERNAL INPUT SIGNALS:

- **EVENT**
- **SET**
- **RESET**
- **EXTEND/RETRACT CMD**

INTERNAL INPUT/OUTPU SIGNALS:

- **INPUT**
- **OUTPUT**
- **OS STATUS**

EXTERNAL OUTPUT SIGNAL:

- **STATUS**

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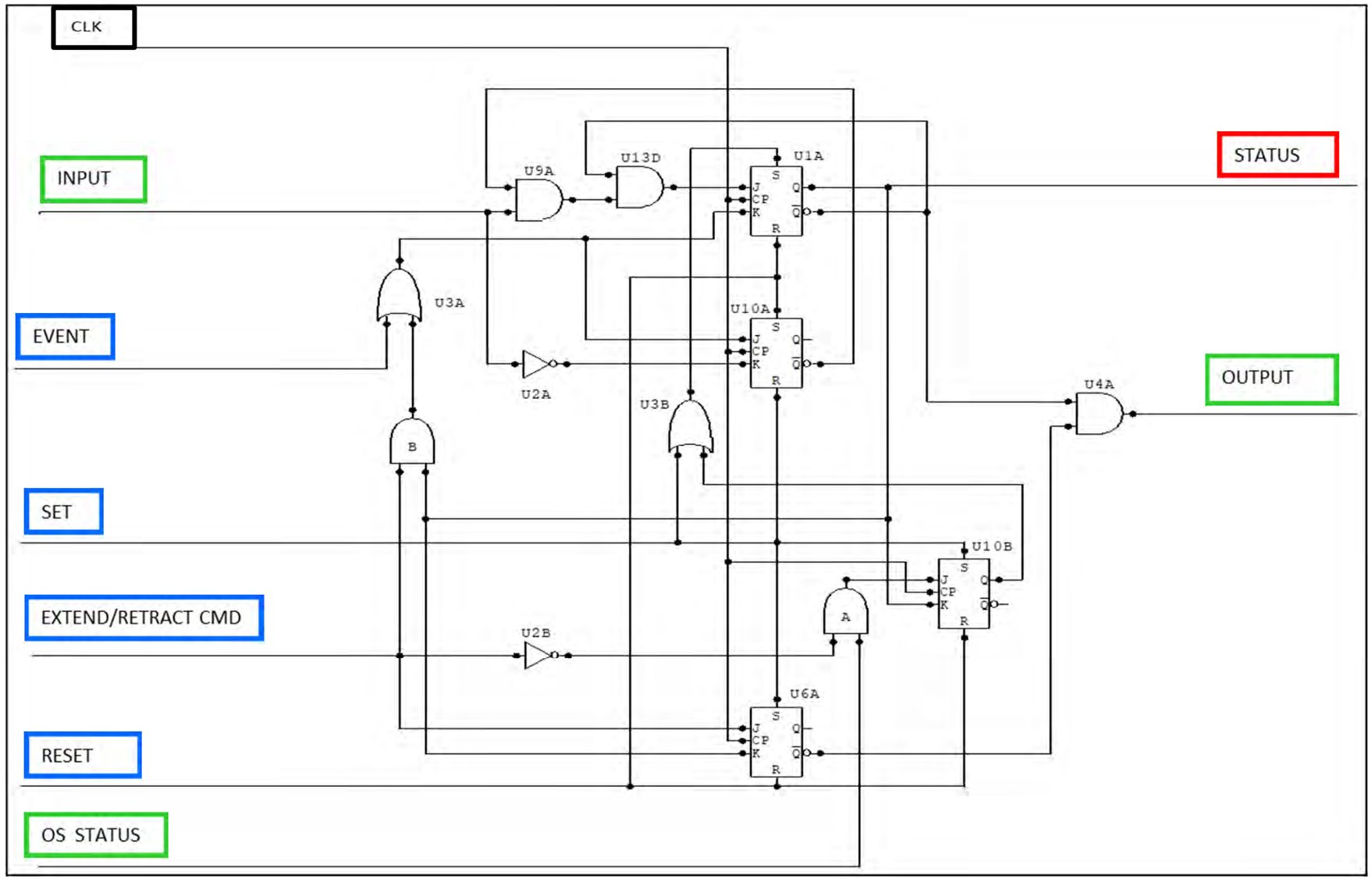
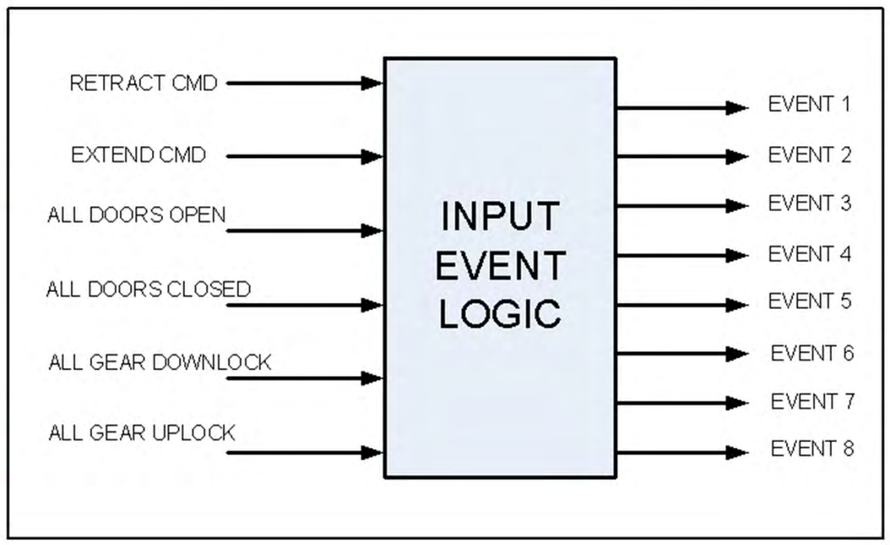
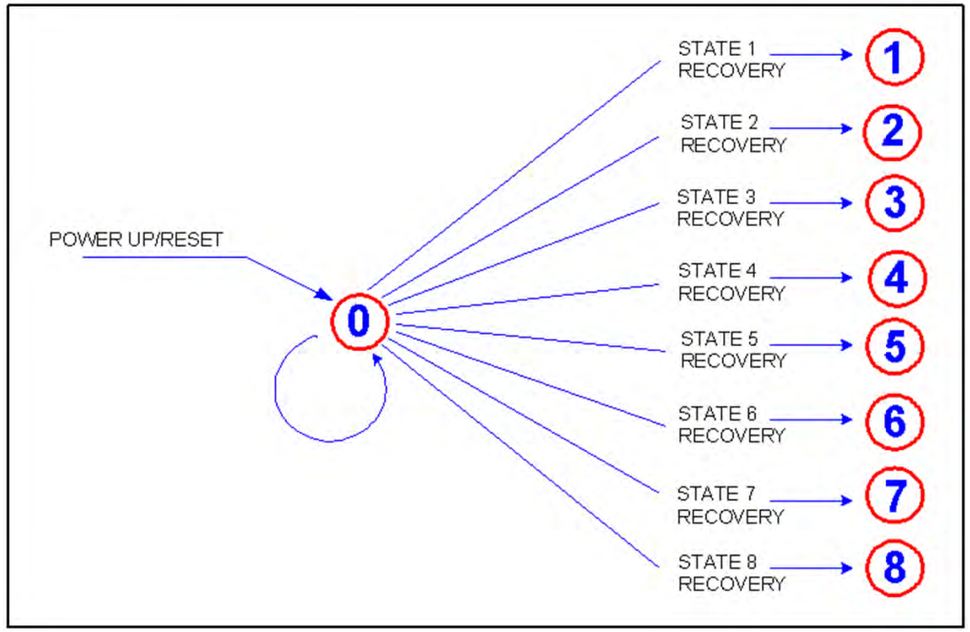
SINGLE STATE CELL, HARDWARE LOGIC IMPLEMENTATION

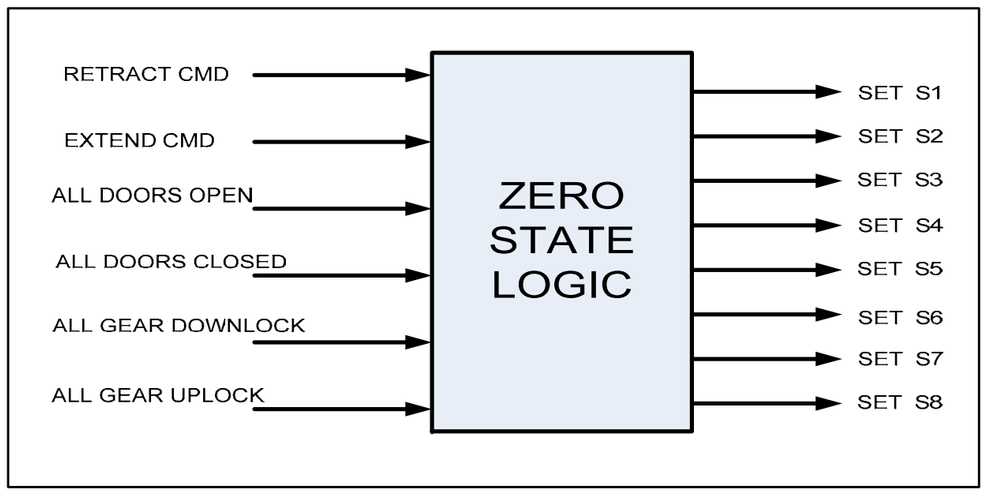


CONTROL COMMAND SIGNALS AND INPUT EVENT LOGIC ELEMENT

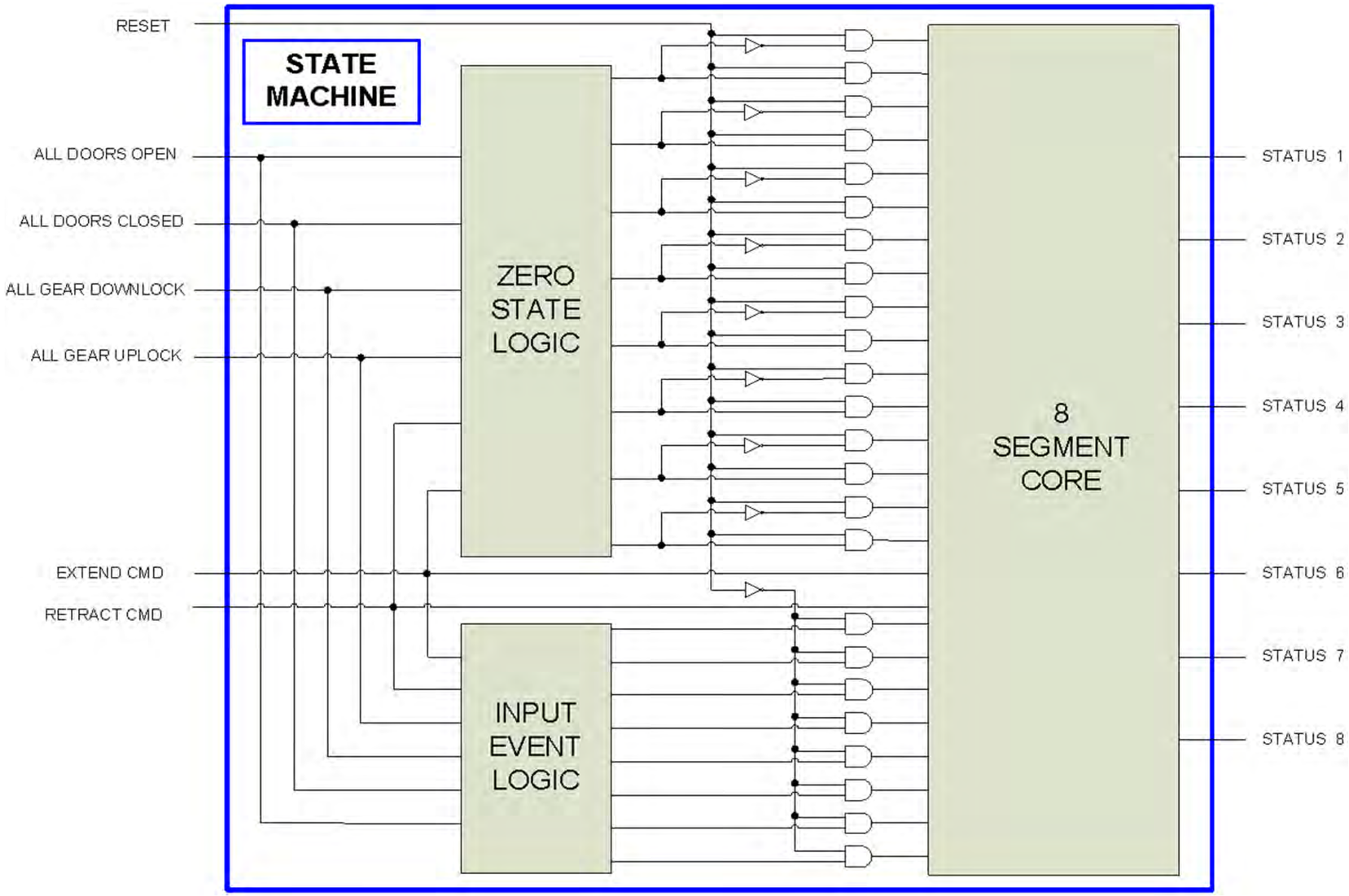


ZERO STATE TRANSITIONS

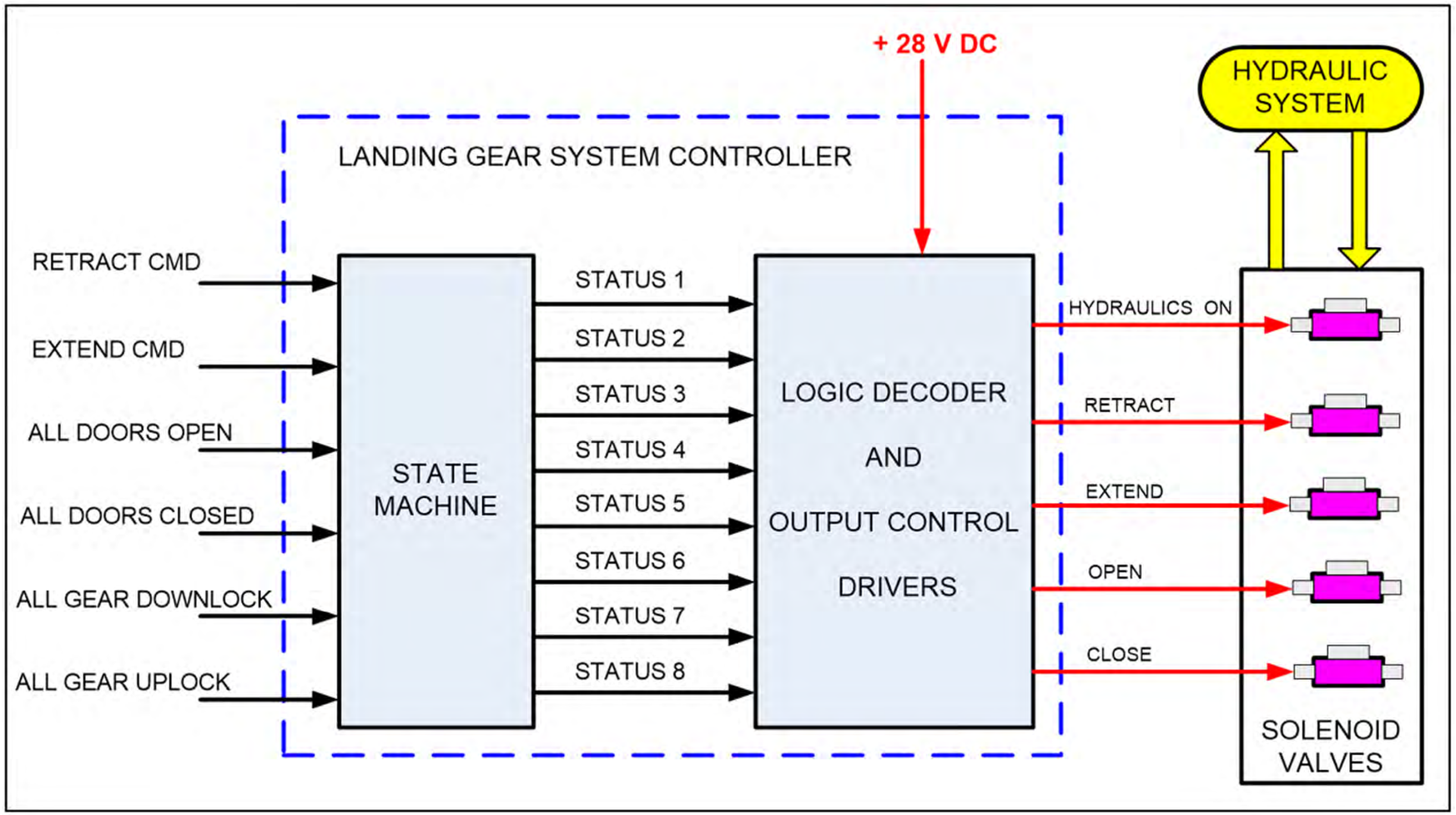




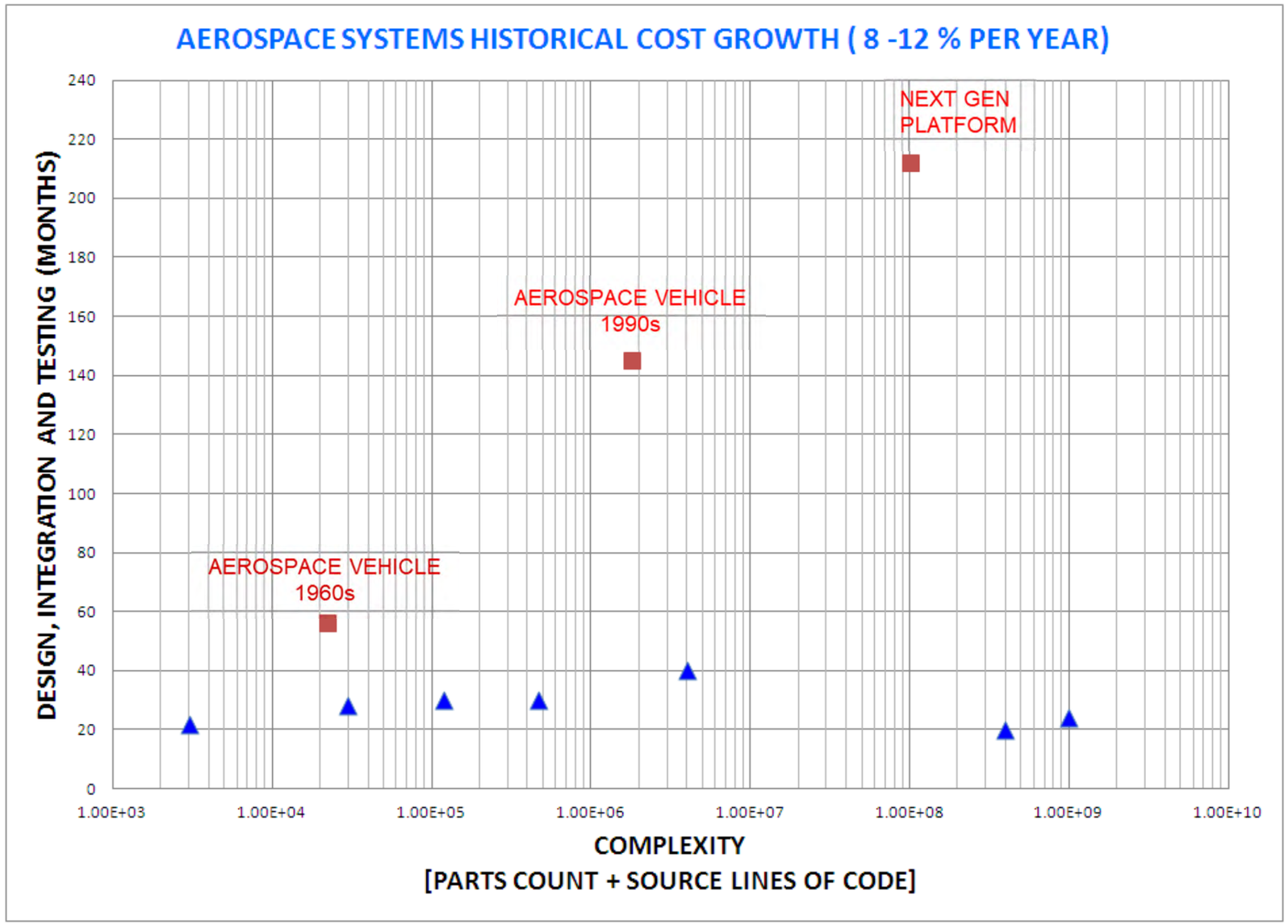
LANDING GEAR CONTROL STATE MACHINE IMPLEMENTATION



LANDING GEAR ACTUATION CONTROL INTERFACE



HYSTORICAL SCHEDULE TRENDS WITH COMPLEXITY
SOURCE: www.DARPA.mil



ADVENTAGES OF THE LANDING GEAR CONTROL WITH HARD WIRED LOGIC IMPLEMNTATION

- COST OF DEVELOPMENT REDUCED
- MORE ROBUST DESIGN IN CASE OF THE SIGNLE EVENT UPSET
- LESS SUSCEPTIBLE ON SECUNDARY LIGHTNING EFFECTS
- MORE INFORMATION AT: **SAE International – Neno Novakovic**

QUESTIONS AND DISCUSSION

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