

Humanoid Group Technology report

By C.G. Liu

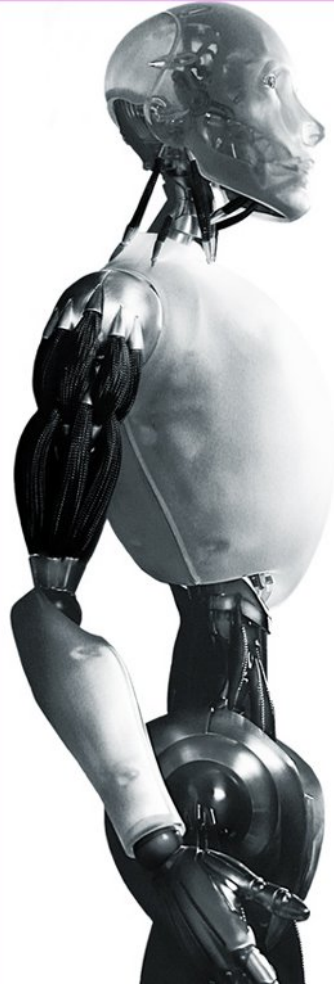
<http://rcir.sjtu.edu.cn/~cgliu>

Outline

- Why humanoid robot
- MIH-1 overview
- MIH-1 hardware
- MIH-1 software
- Current Status & Problems
- Short-term goal

Why humanoid robot?

- Work in h
environment
- Use tools
- Interact w
- Test wha
psycholo
- The drea



*Introducing the world's first
fully automated domestic assistant.*

The
NS-5

What will you do with yours?

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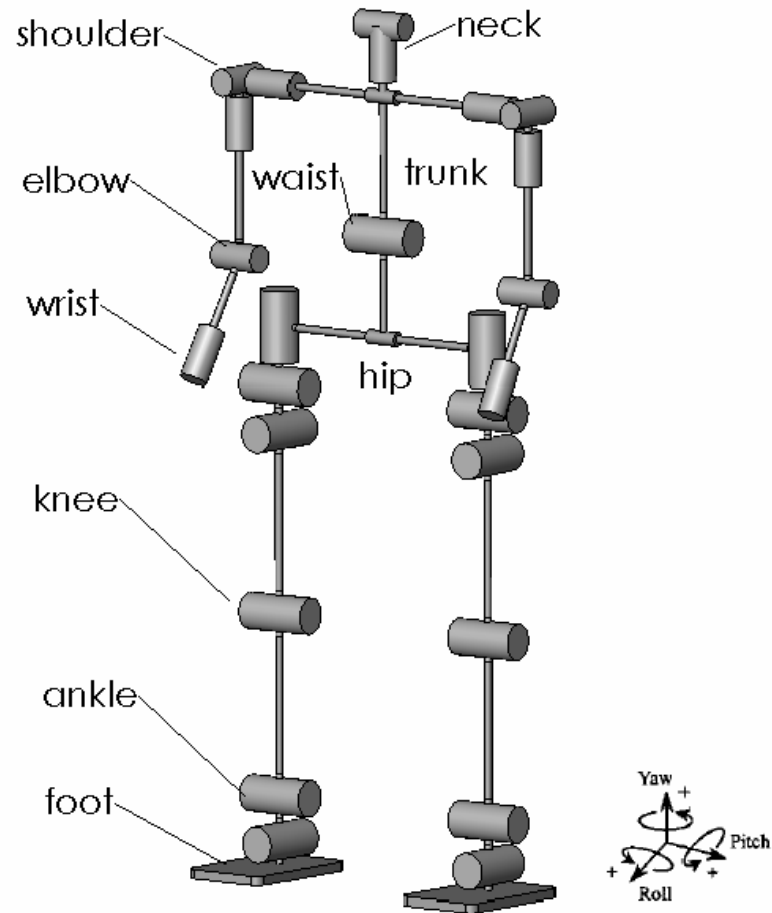
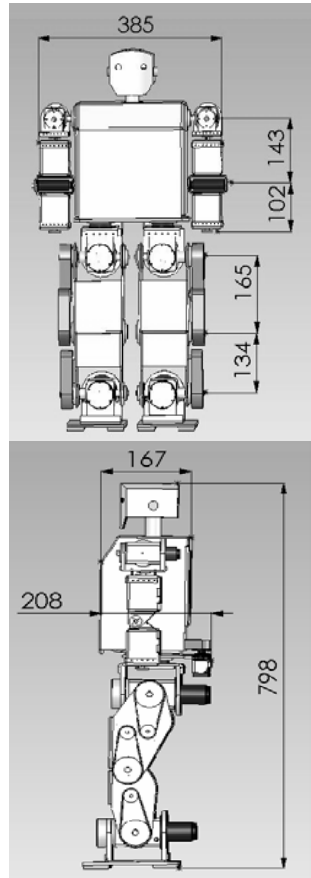
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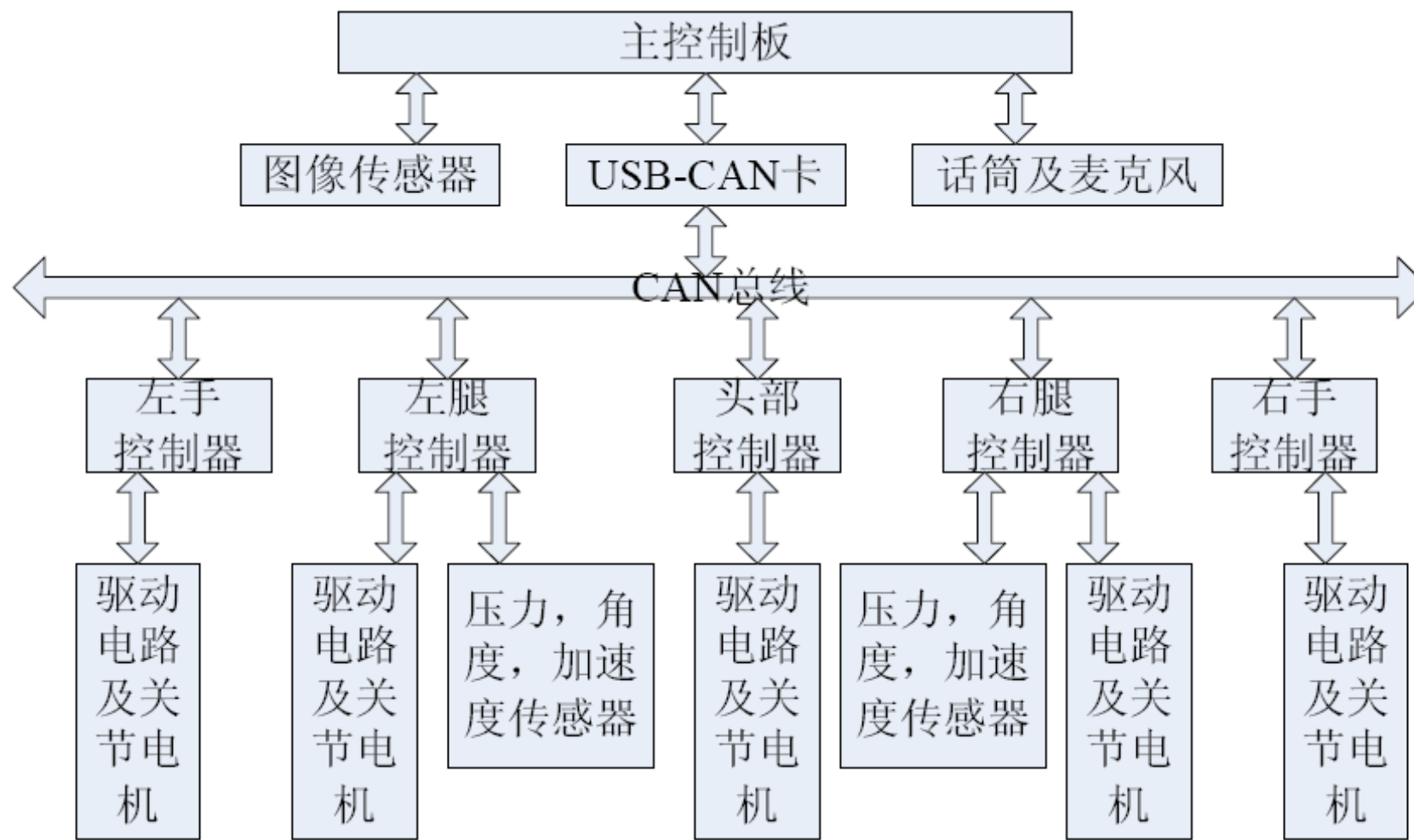
MIH-1 Overview

- Height 798mm
- Width 385mm
- Depth 208mm
- Weight 26kg
- DOF 25 (12 of legs, 1 of waist, 10 of arms, 2 of head)
- OS Windows2000/XP
- Sensor Not yet
- Power 1600W DC power on line

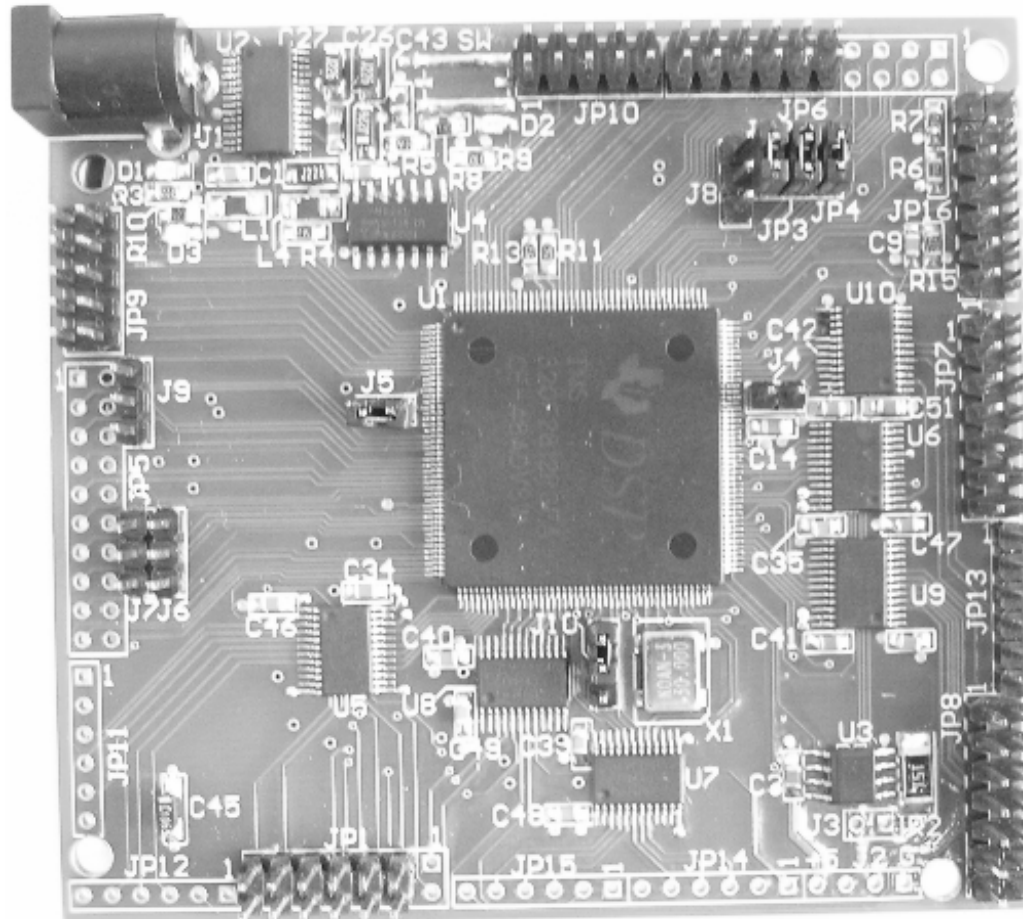
MIH-1 Hardware-Framework



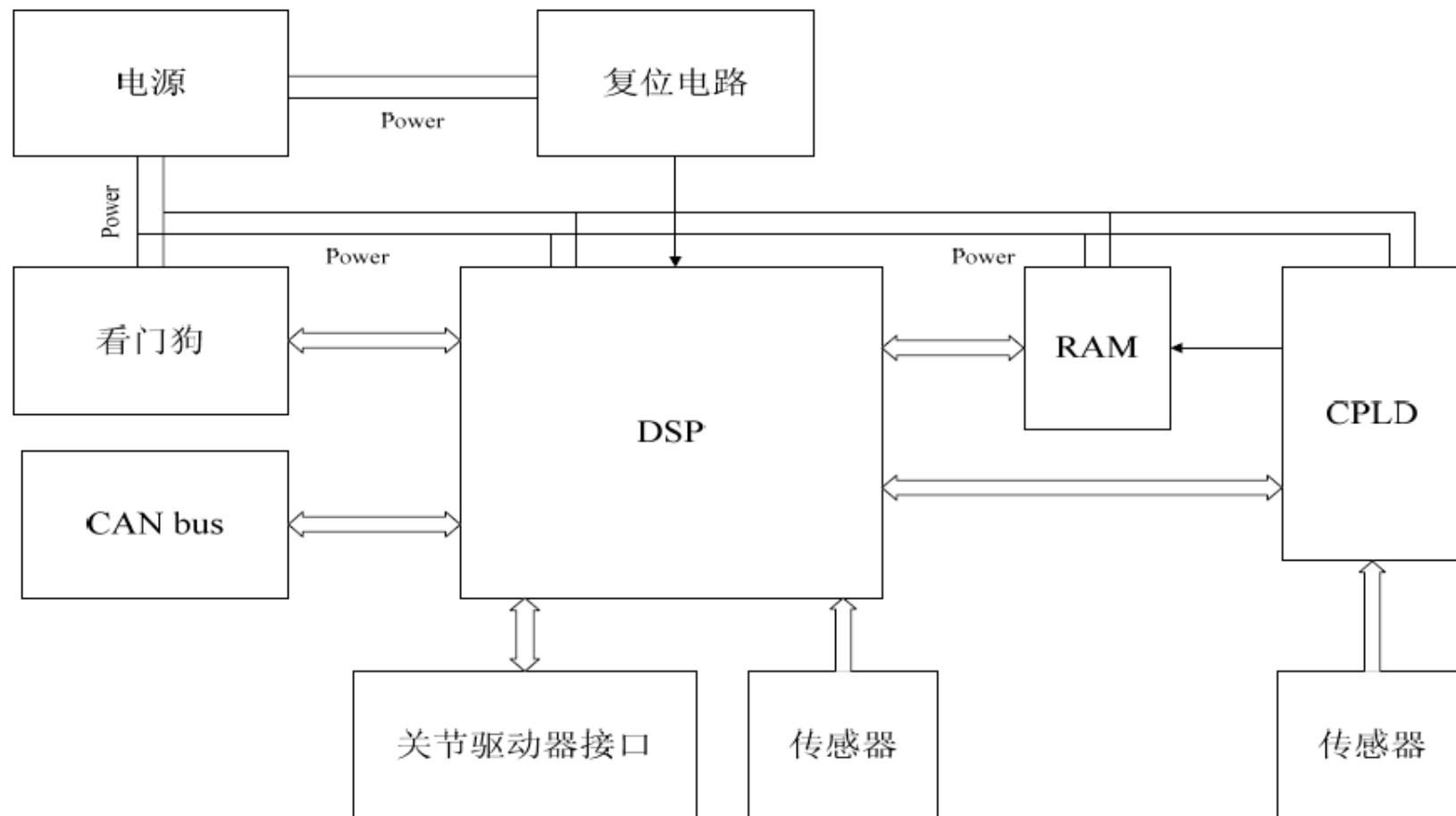
MIH-1 Hardware



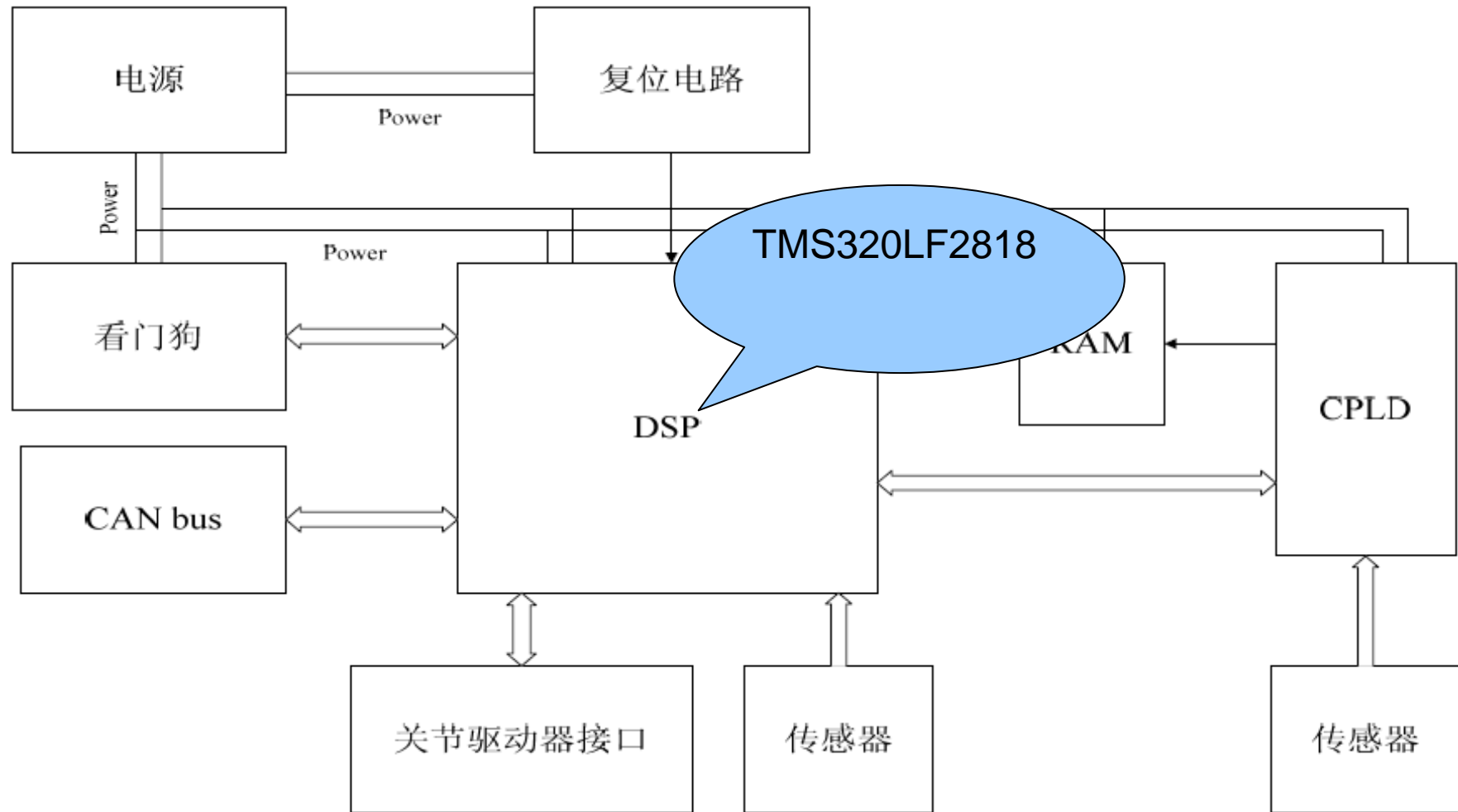
MIH-1 Hardware – Motion Controller



MIH-1 Hardware – Motion Controller

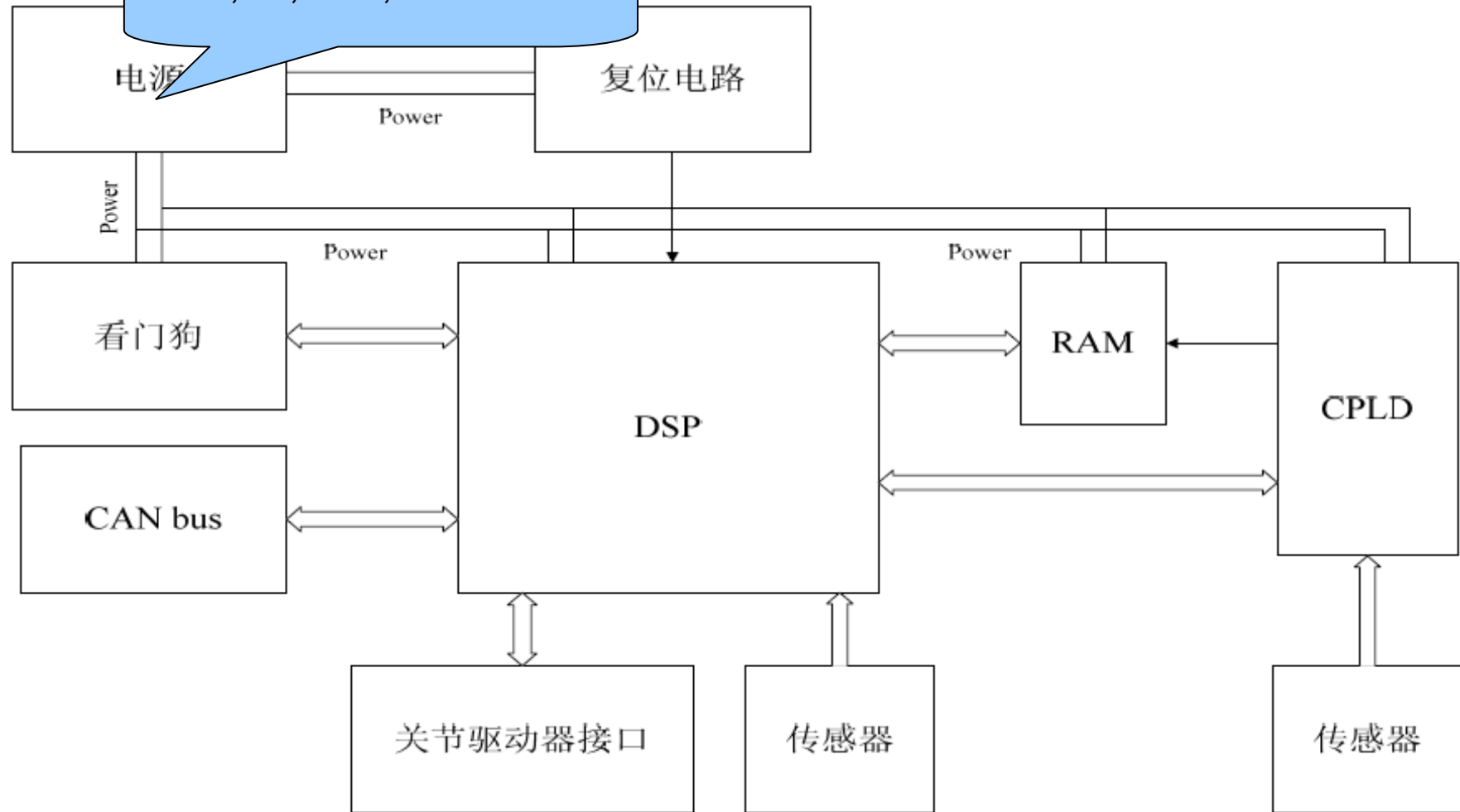


MIH-1 Hardware – Motion Controller

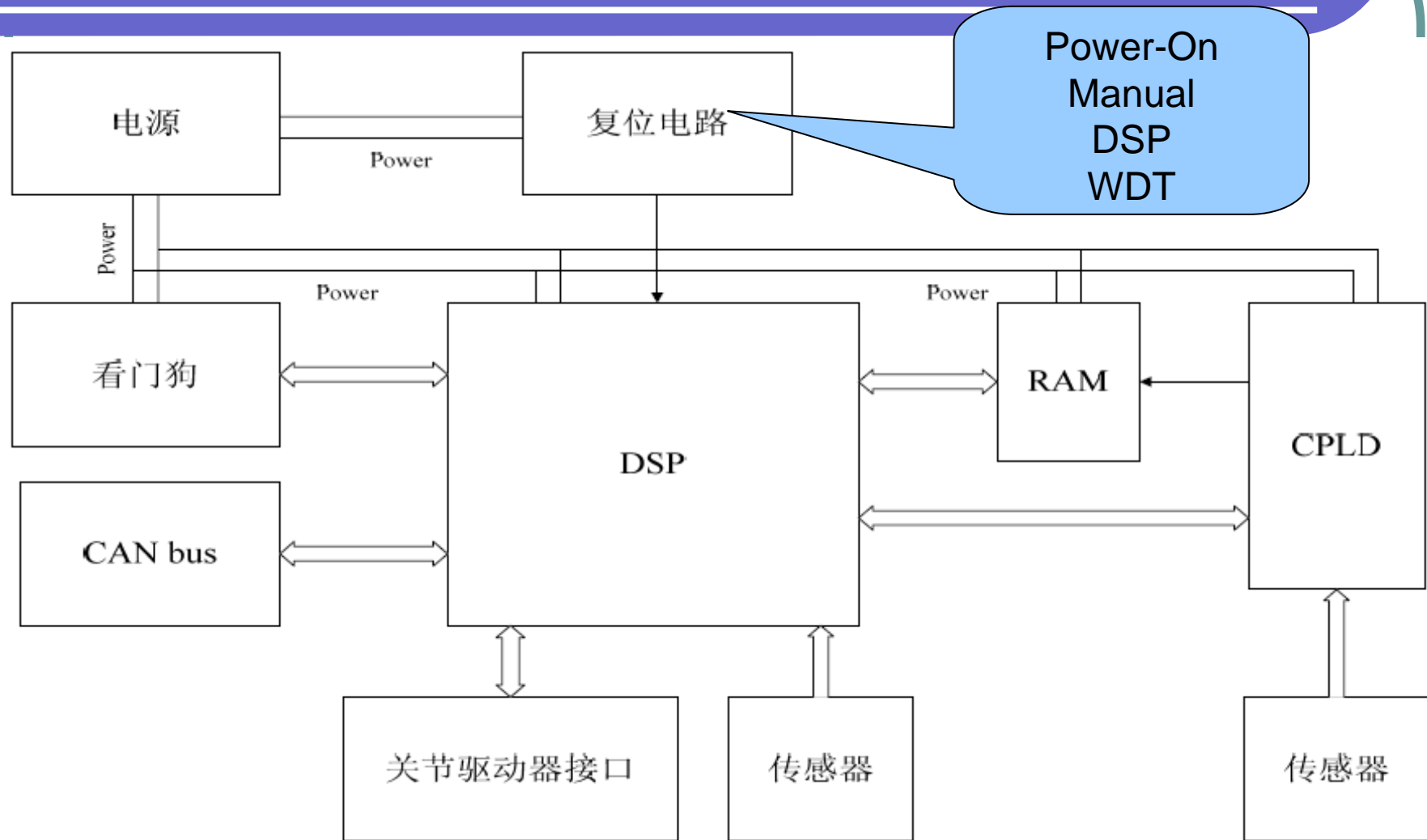


MIH-1 Hardware – Motion Controller

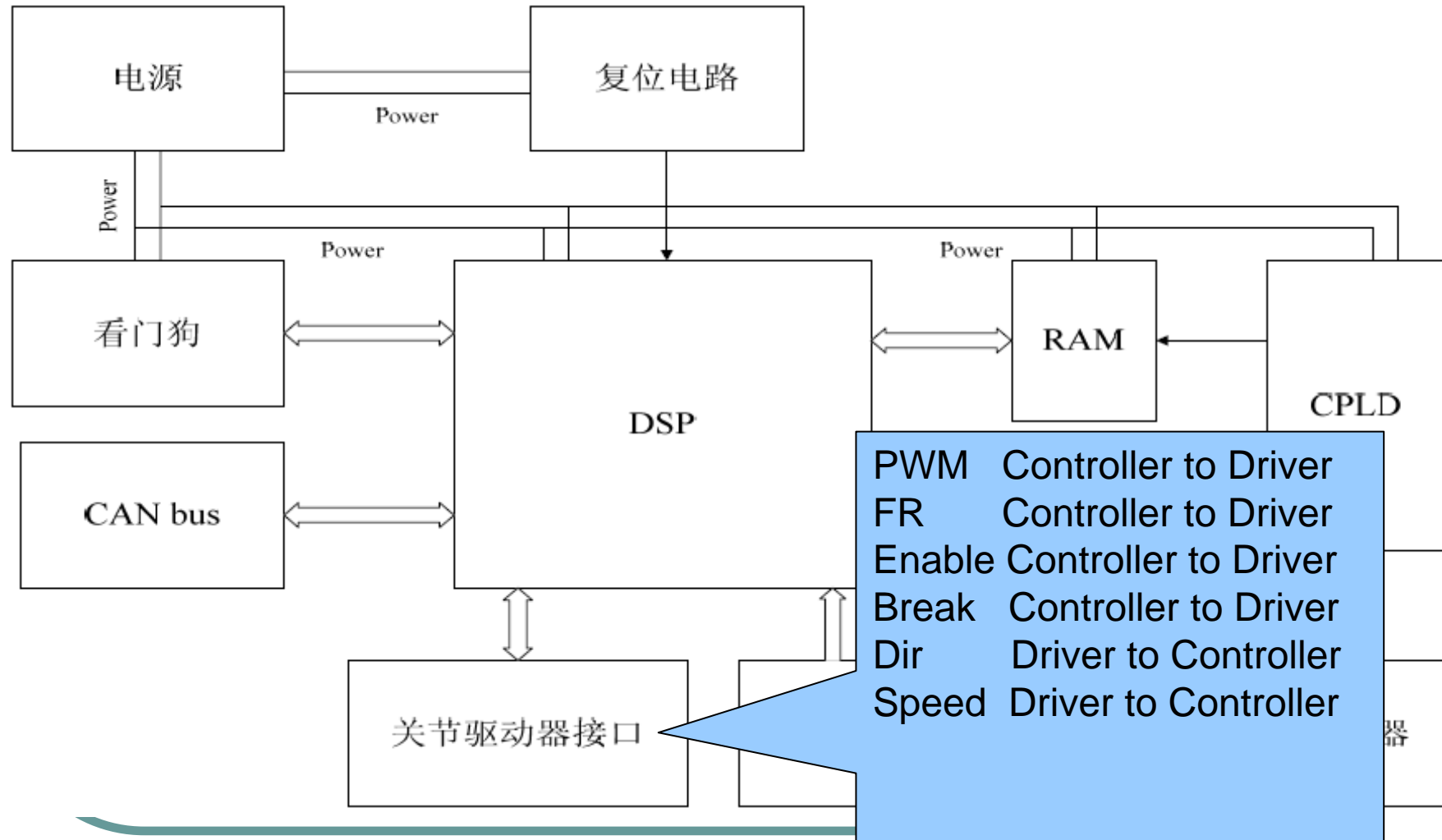
24V,5V,3.3V,1.8V



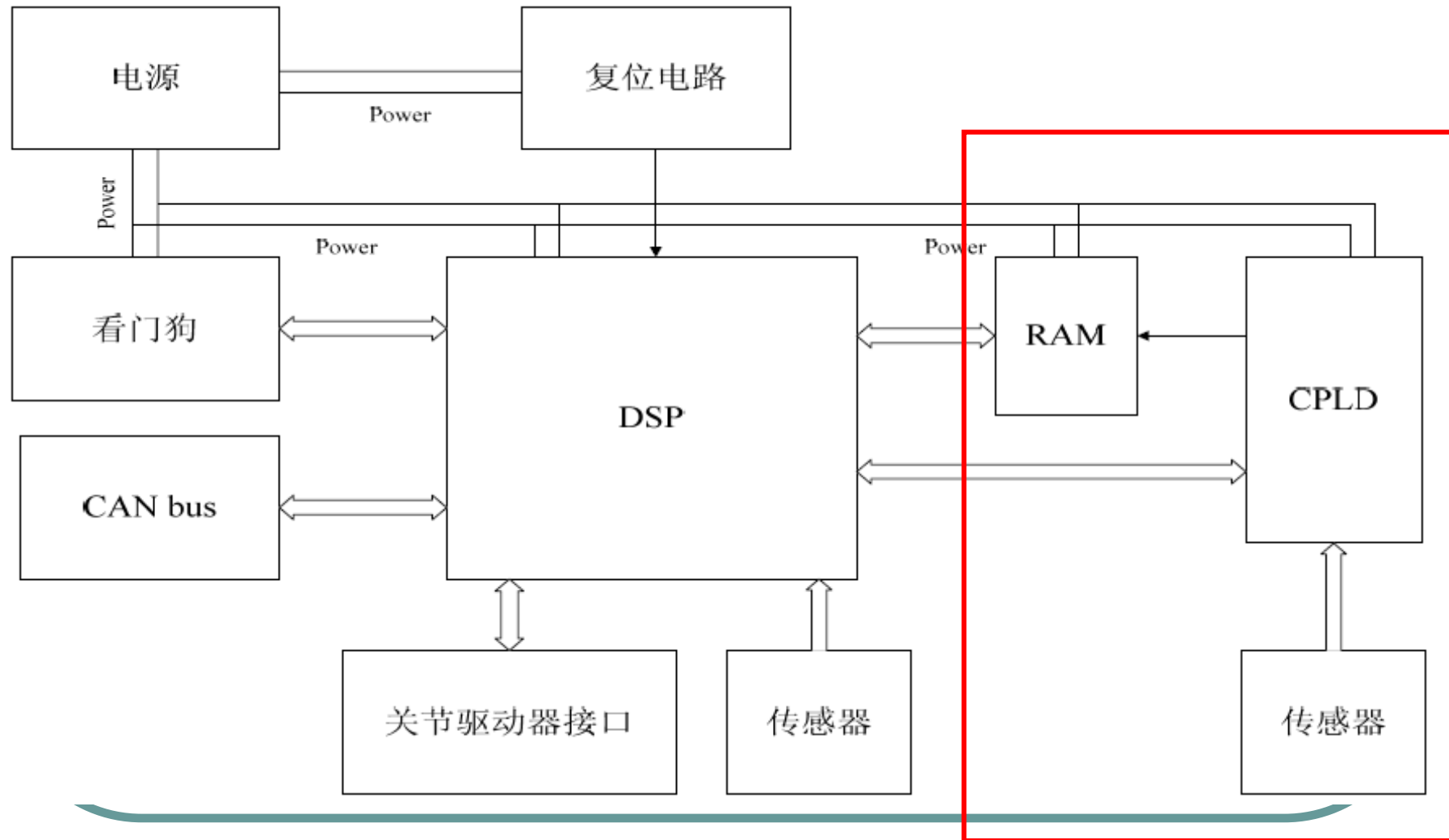
MIH-1 Hardware – Motion Controller



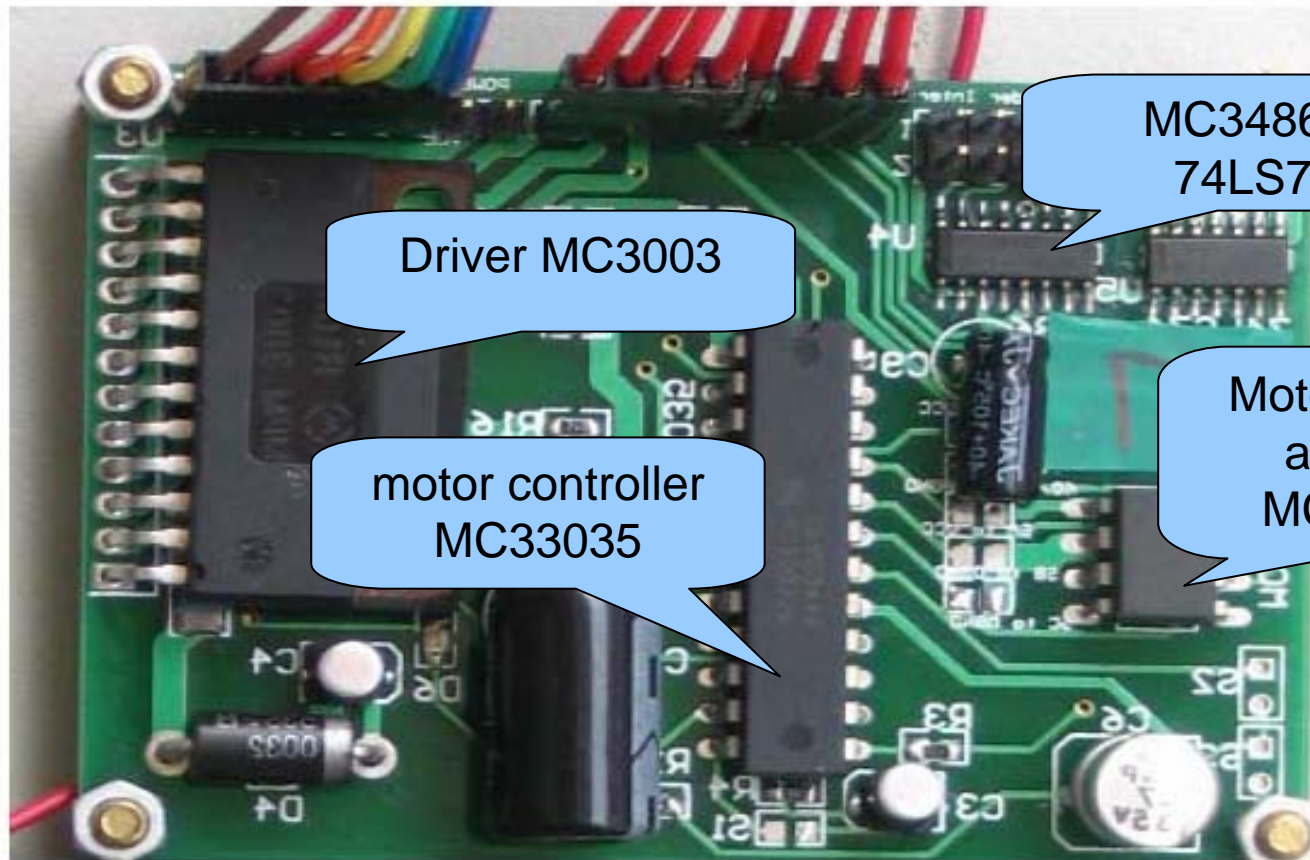
MIH-1 Hardware – Motion Controller



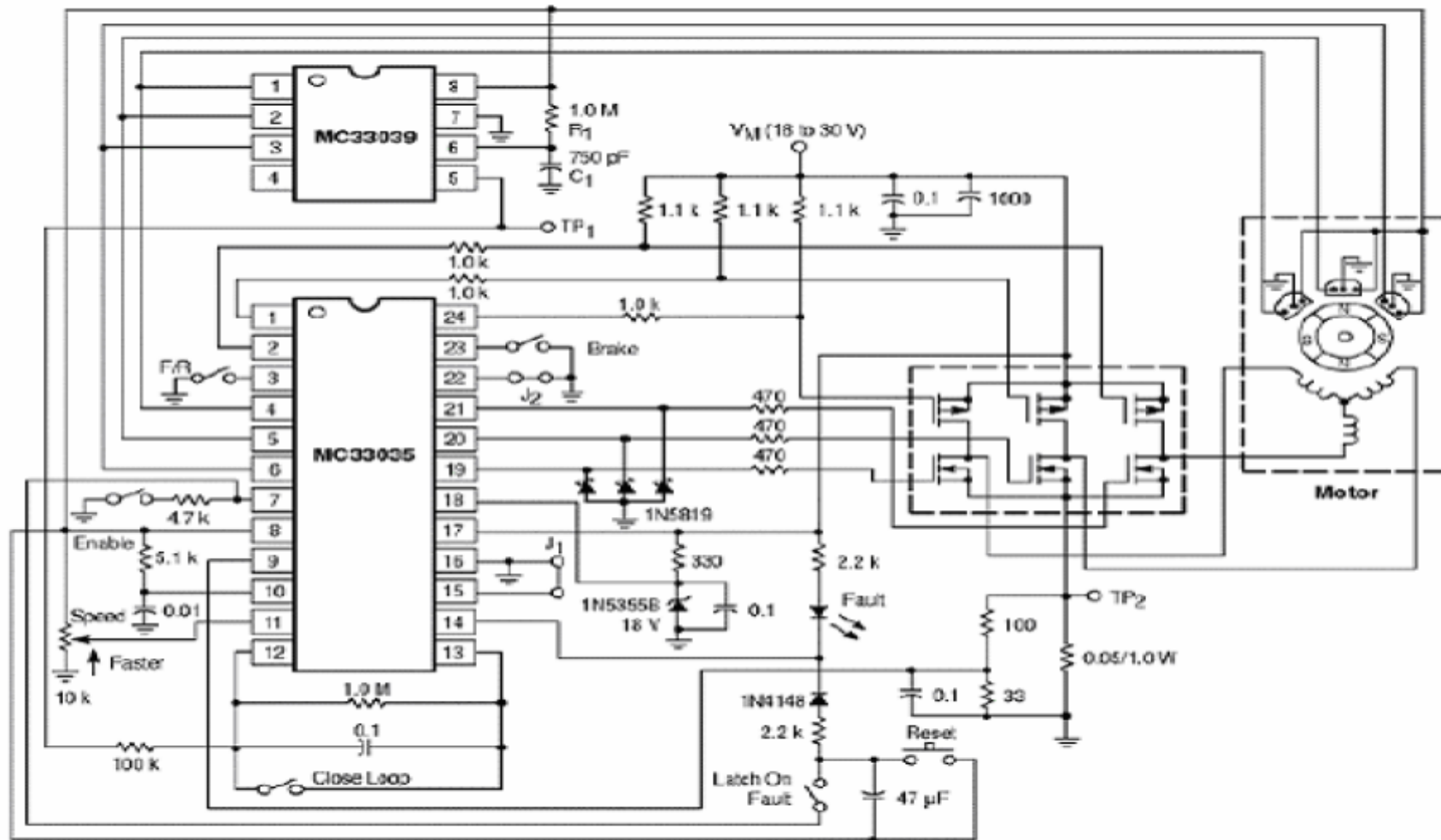
MIH-1 Hardware – Motion Controller



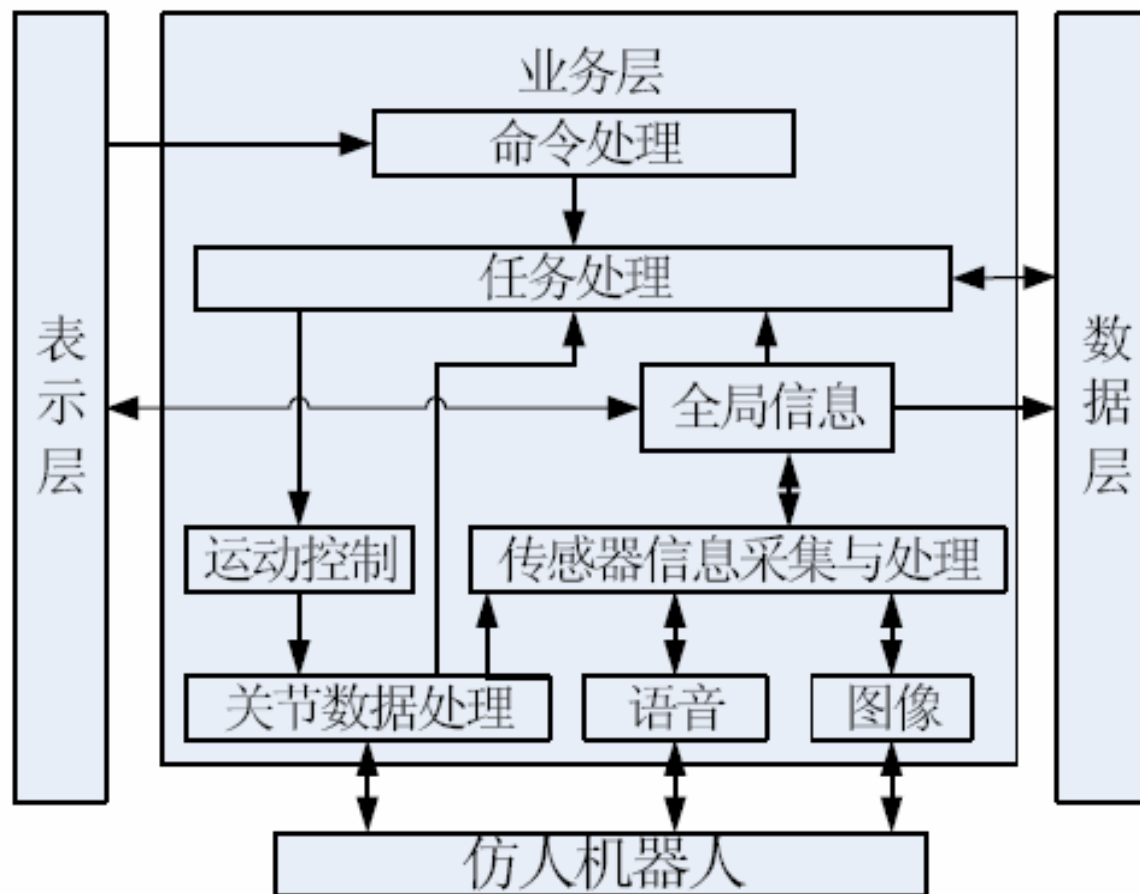
MIH-1 Hardware – Motor Driver



MIH-1 Hardware – Motor Driver



MIH-1 Software



Current Status & Problems

- Mechanism framework implemented
- Motion Controller without memory extend and RS232 expand implemented
- Motor Driver implemented
- Motion Controller code
- Software without control algorithm implemented

Current Status & Problems

- Mechanism
 - Two DOF in hipbone failed
 - The weight, transmission clearance
 - ...
- Motor Control
 - Position control static error
 - ...
- Software
 - Real-time
 - Synchronization
 - ...

Short-term goal

- For mechanism (D.P. Xing, Nuo Wang)
 - Fix potential problems
- For hardware (Yi Zhang)
 - Motor controller methodology (the board, the code)
 - Install sensors: Force (A/D), Angle/Angle acceleration(RS232), Location (RS232)
 - Memory extended
 - RS232 extended
- For software (Breen Yang)
 - Real-time & synchronization problem
 - Server-client structure?
- Algorithm (D.P. Xing)
 - Bipped control algorithm



Thanks!