

A unique platform to accelerate MCS development

Ready to use controller platform, configurable to your technology development

- Safety Critical Architecture suitable for a future Class III medical device
- Customisable Field Oriented Control
- Ease of integration of physiological and motor control algorithms
- 2 motor drives with status indicators (can customise for more)
- Programmable sensor inputs/outputs, LED indicators & function switches
- Removable SD card for data logging
- Data streaming to the LUDO User Application
- Switching between RM57 and FPGA processor



Customisable user interface supports flexible testing with real-time feedback

- Data visibility in real time
- Data logging from all available streams
- Configurable physiological & motor control parameter including pump speed, motor control gains, motor on/off, pulse rate, and pulse amplitude
- Customisable to view extra data streams
- Customisable dashboards to monitor tests and trials
- Event & fault extracts from the controller

Pump Control

Motor / Maglev Configuration	6 independent half-bridge outputs (configurable) 12 with Motor Board	●
Drive Power	System: 90W @ 24VDC Current: 5A RMS max (per motor)	●

Physical

Physical Dimensions	250 x 212 x 110 mm	●
Configurable Indicators	4 LEDs	●
Configurable Buttons	3 (illuminated)	●
Fixed Indicators	Motor status (x2), Power, Error, Computer Connected and FPGA Bypass	●
USB-C Port	For PC connection	●
SD Card	1 micro SD Slot	●
Environmental Conditions	Room temperature 20 - 25°C and up to 90%RH noncondensing.	●

Connectors

DC Power Input	12-48VDC @ 4A	●
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External interfaces

LUDO PC Application	USB-C (Virtual COM Port)	●
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I/O

I2C	1	●
SPI	1	●
GPIO	1-12 (unused comms can b used as GPIO)	●
Power	Factory configurable 5V or 3.3V 75mA	●
ADC	6 inputs 0-5V	●
UART	1	●
Additional I/O	Please contact us with your requirements	●

Data Streaming

Data Streaming Channels	20	●
Data Streaming Rate	100 Hz	●
Data Streaming Resolution	16 bits	●

Customer Algorithm Support

Physiological Control	Customisable	◆
Motor Control	Default - Sensorless FOC	◆
Magnetic Levitation	Customisable	◆
Language Support	C/C++17/Matlab*/Simulink* *via code generation to C	●

Microcontroller

Model	TI RMS57L843	●
Frequency	330 MHz	●
DMIPS	1.66 DMIPS/MHz	●
Flash	4096 KB	●
RAM	512 KB	●
Safety Features	Dual-core lockstep, ECC on RAM & FLASH	●
Realtime Clock	Yes	●

FPGA

Model	M2GL050	●
Max Logic Elements	56 K	●
Math Blocks	72	●
Embedded Memory	1826 Kb	●

● Supplied default

◆ Customisable with customer Simulink model via code generation

● Hardware included but not activated - Contact us with your requirements

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