Flight Controller
APM 2.8

An **Unmanned aerial vehicle** (UAV) is a Unmanned Aerial Vehicle. UAVs include both autonomous (means they can do it alone) drones and remotely piloted vehicles (RPVs). A UAV is capable of controlled, sustained level flight and is powered by a jet, reciprocating, or electric engine.
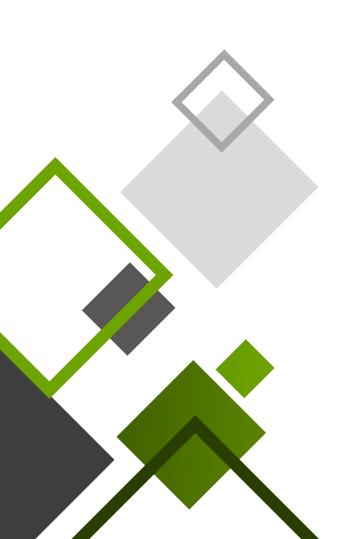
CONTENTS TITLE

Flight Controller?

Flight Controller?

- **FC:**
  - 드론을 조종자의 명령과 현재의 센서값에 따라 각 작동기들을 제어함.
- **FC 의 종류**
  - F/W에 따라: Muti-Wii 계열, Ardupilot 계열, NAZE
  - Processor에 따라:

pixhawk

| STM32 F1 |
| PX4 Autpilot |

Crius

| ATmega 328P |
| Multi-Wii |

APM

| ATmega 2560 |
| Ardupilot |

NAZE32

| STM32 F1 |
| NAZE 32 |

Arduino compatible

pixhawk
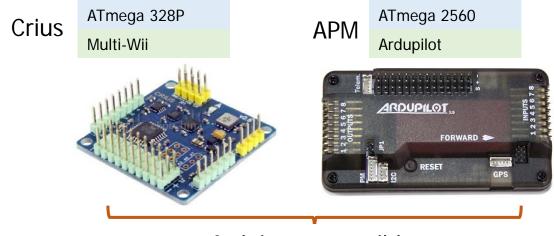
Flight Controller?

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- ■ Open source drone firmware
  - **MultiWii**
    - 홈페이지 : http://www.multiwii.com/
    - Afroflight32 (STM32)
  - **ArduPilot/APM**
    - 홈페이지 : http://ardupilot.com
  - **Libre/OpenPilot**
    - https://www.librepilot.org
  - **AeroQuad**
    - aeroquad.com
  - **PX4**
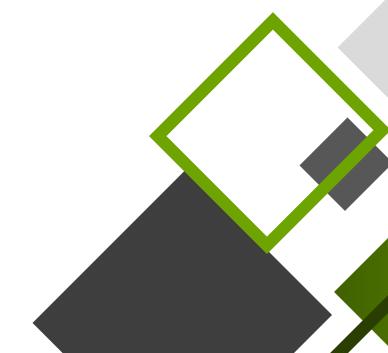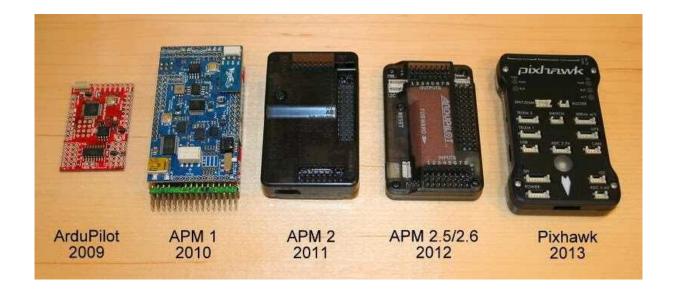   - px4.io
  - **Crazyflie**
    - www.bitcraze.io

APM 2.8?

APM이란?

■ **정의**:

- **Ardupilot Mega** (**APM**)
  - IMU autopilot based on the Arduino Mega platform.
  - Autopilot for
    - fixed-wing aircraft,
    - multi-rotor helicopters
    - traditional helicopters.
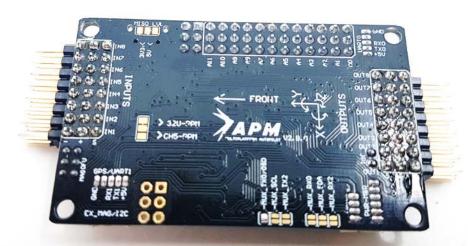
출처: http://ardupilot.org/

APM 2.8 분해

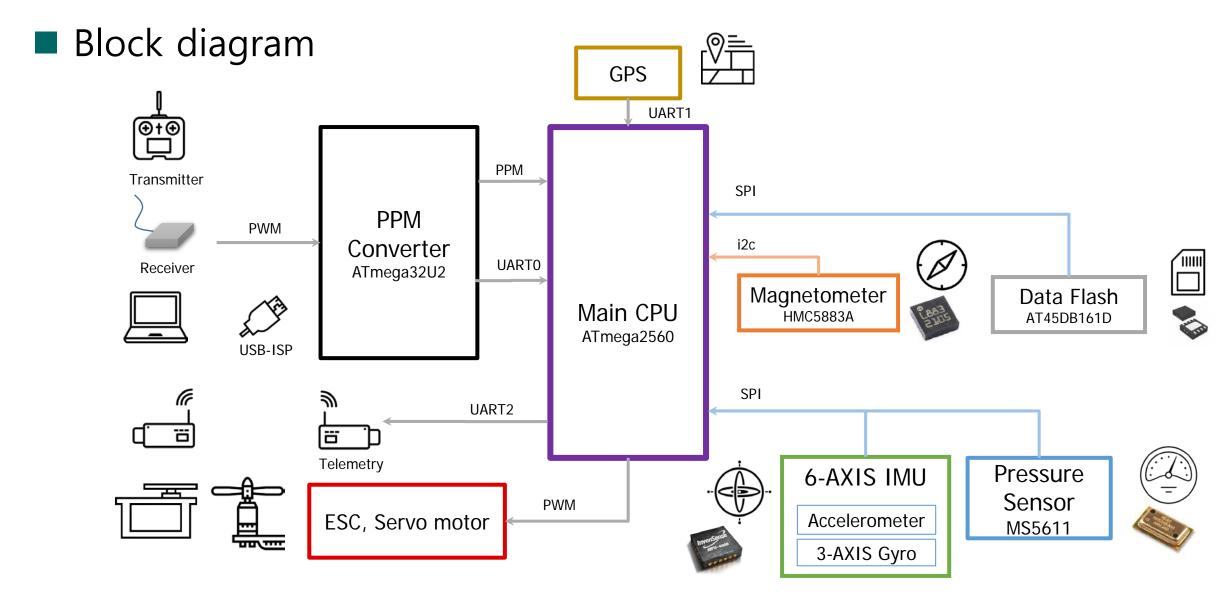Dept. of Mechanical System Design, Seoul National University of Science and Technology.

■ 보드 사진

APM2.8

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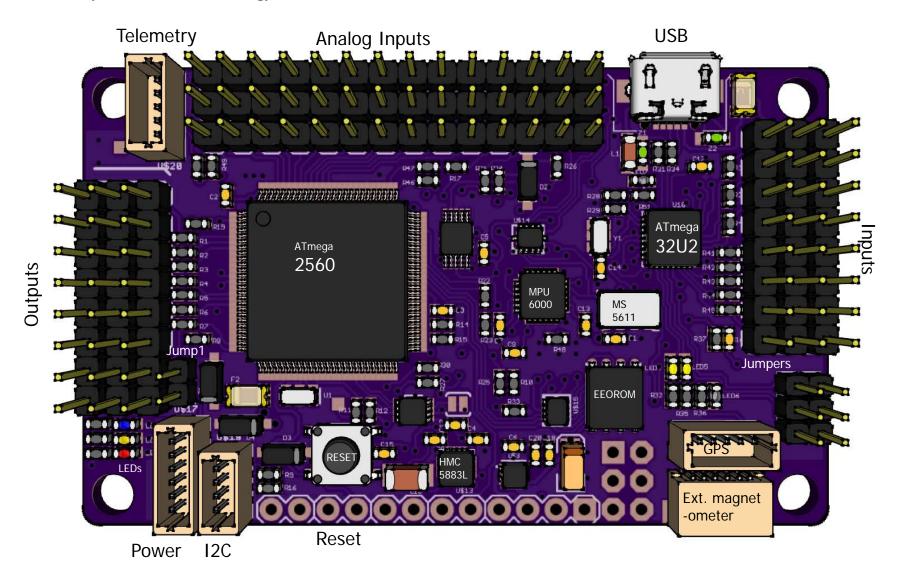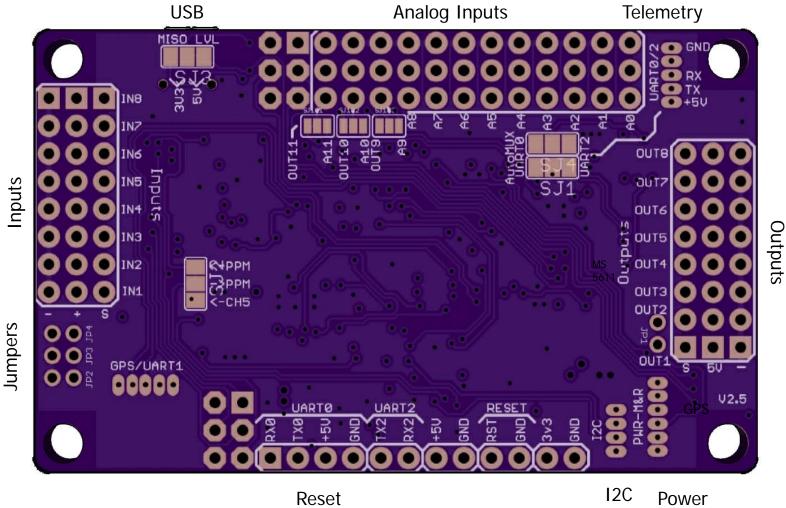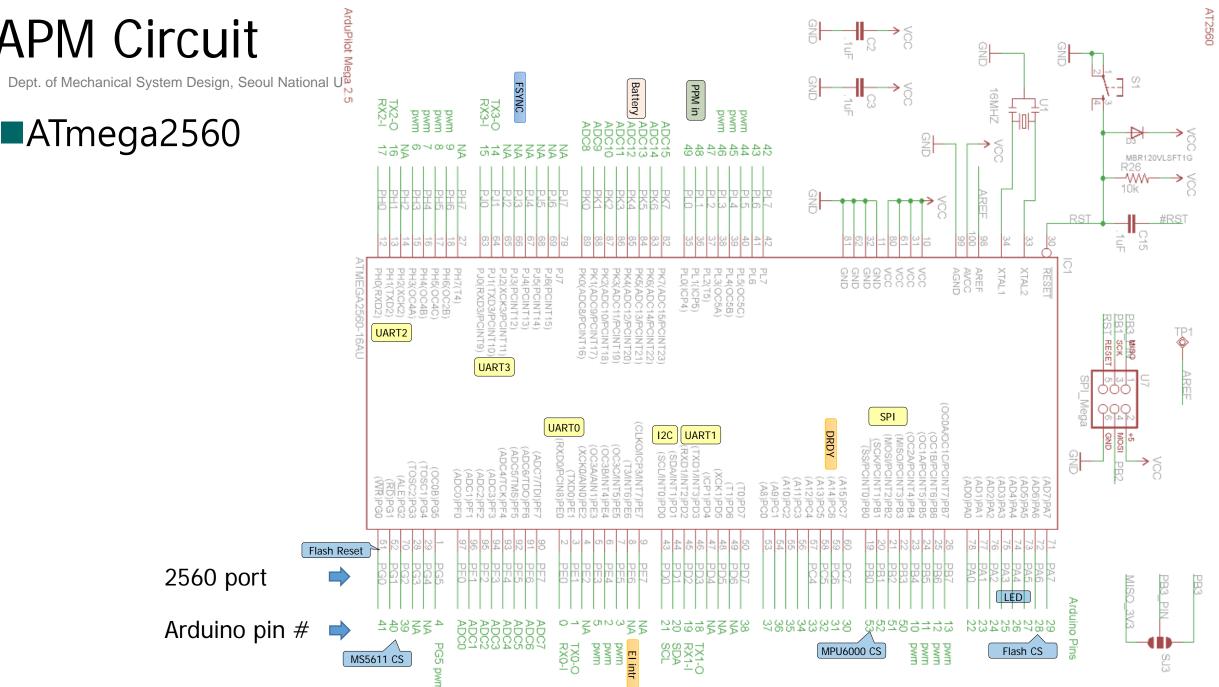
■ Block diagram

Circuit of APM 2.8

Front

Back

APM Circuit

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■ ATmega2560

APM Circuit

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32U2

APM Circuit

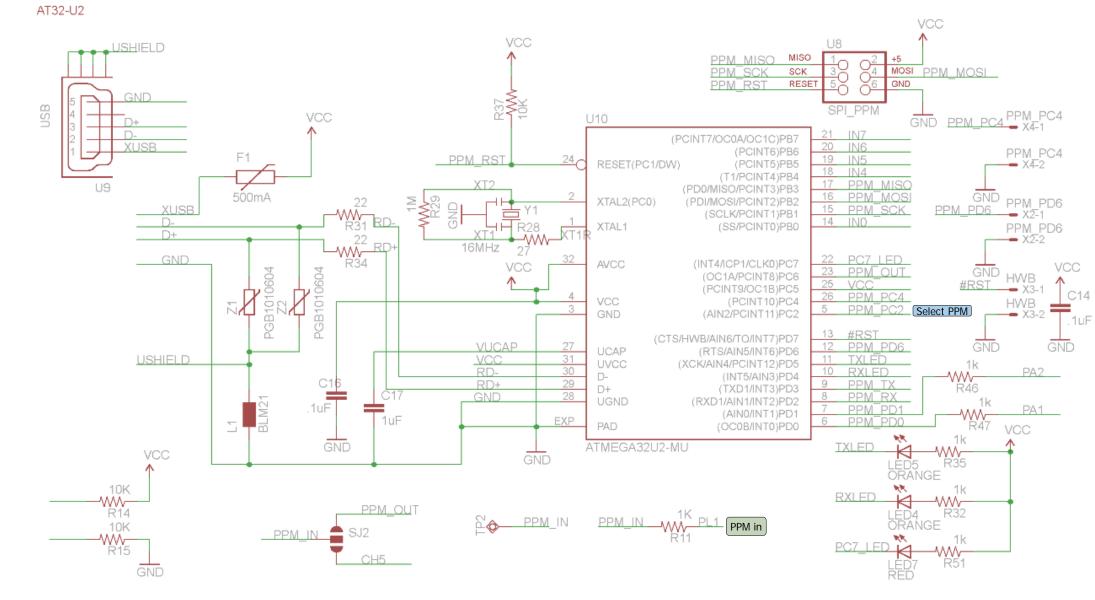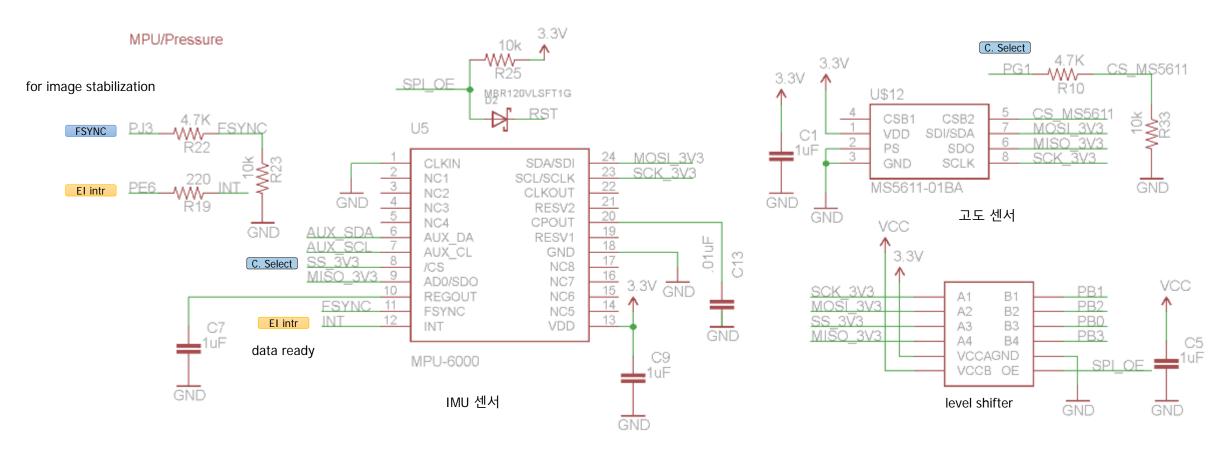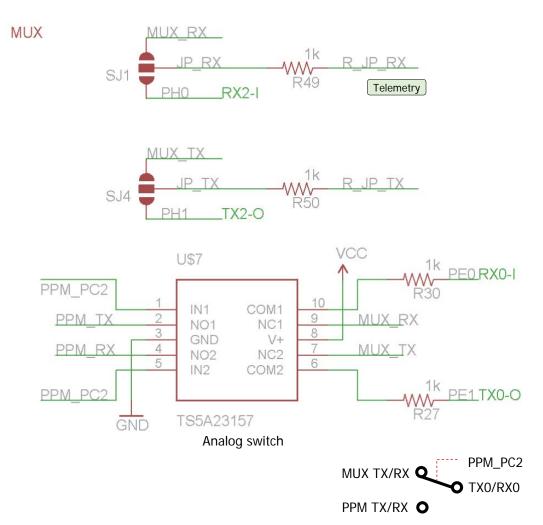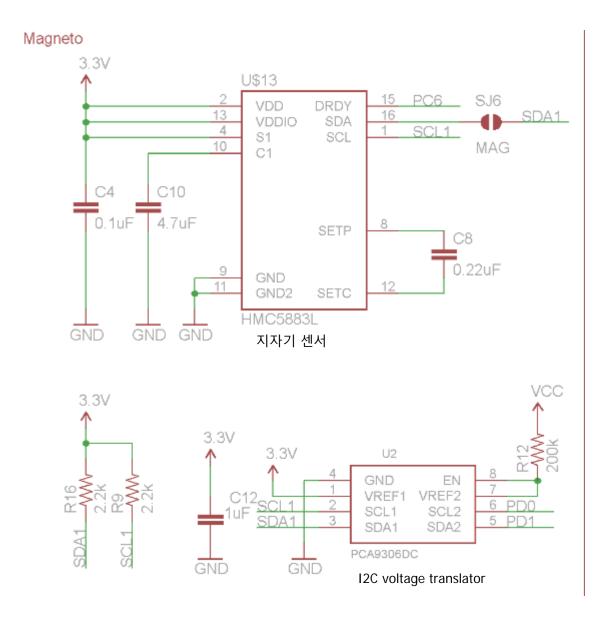Dept. of Mechanical System Design, Seoul National University of Science and Technology.

■ MPU6000, MS5611

MPU/Pressure

for image stabilization

FSYNC

EI intr

C. Select

EI intr

data ready

IMU 센서

고도 센서

level shifter

APM Circuit

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■ Magnetometer

Analog switch

Telemetry

MUX TX/RX — PPM_PC2 / TX0/RX0
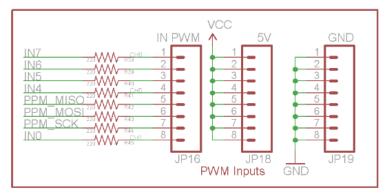
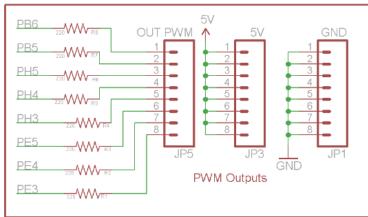PPM TX/RX

Magneto
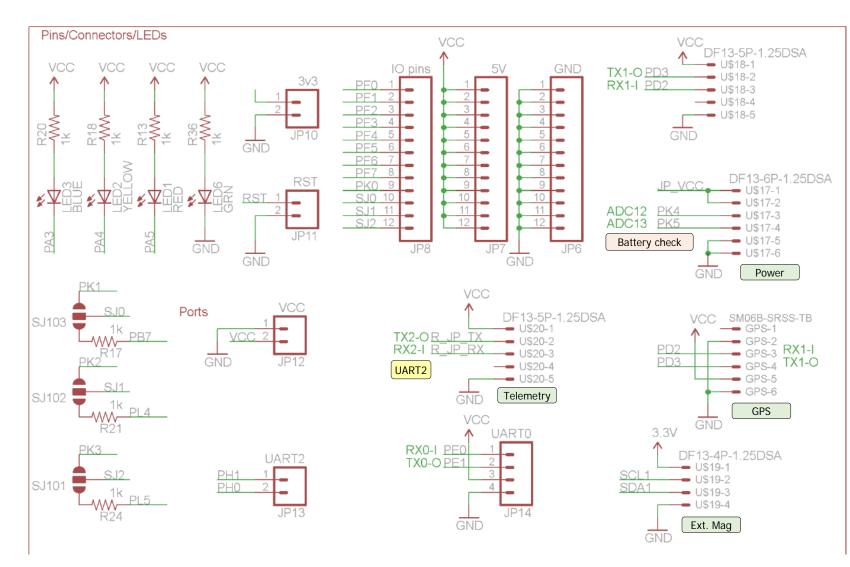
지자기 센서

I2C voltage translator

APM Circuit

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■ Connectors

APM Circuit
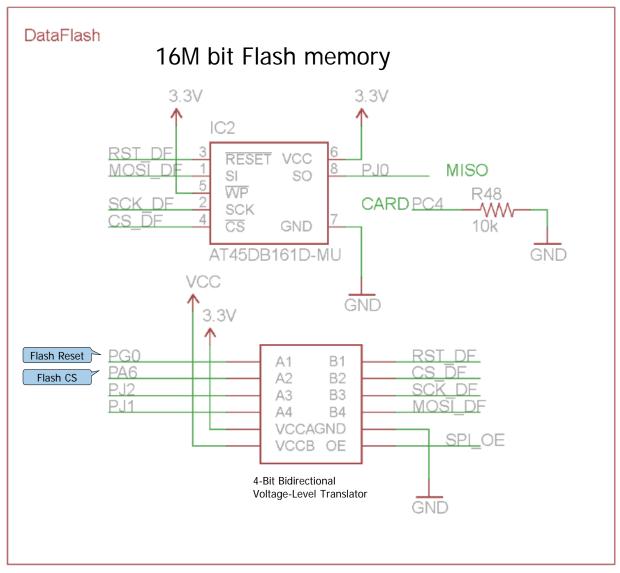
Dept. of Mechanical System Design, Seoul National University of Science and Technology.
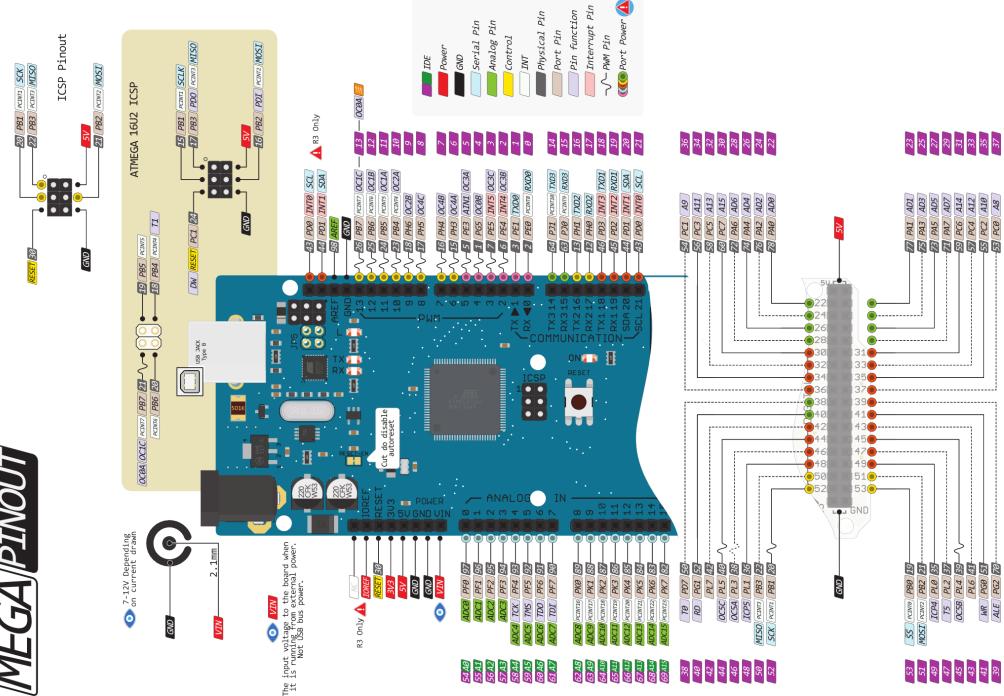
■ EEPROM (SPI) 16M bit

THANK YOU

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