Drive your AC Brushless motor easily with RX111

Experiment – Autocalibrate – Integrate.

Renesas Electronics Europe
ICBG
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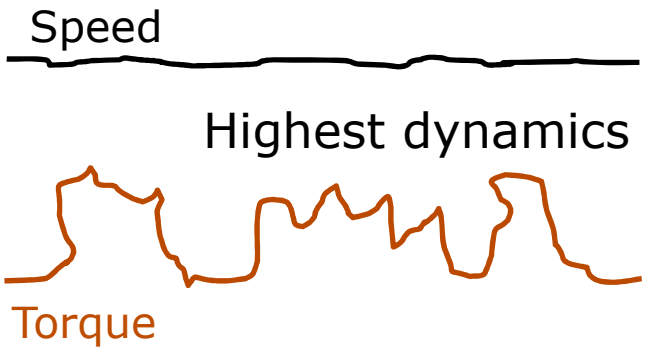
Which target applications vs. requirements?



Highest MCU cost
Low CPU load

Medium MCU cost
Mid CPU load

Lowest MCU cost
High CPU load

Set of Motor Control solutions for your inverters

RENESAS RX RX600

Highest dynamics

Highest MCU cost
Low CPU load

RENESAS RX RX200

Medium MCU cost
Mid CPU load

Good dynamics

RENESAS RX RX100

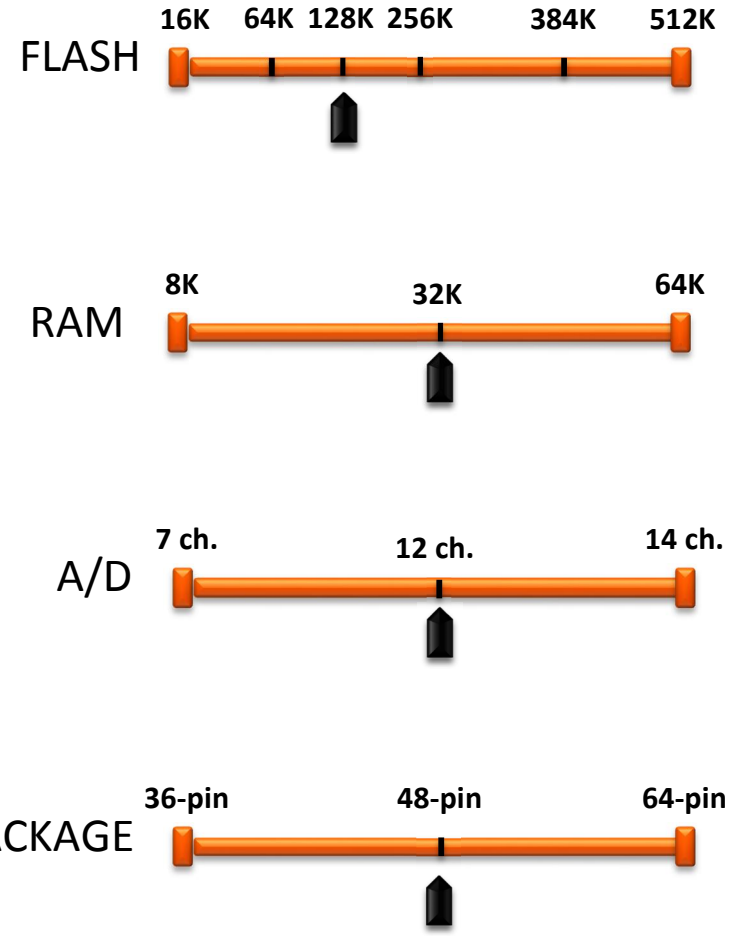
RENESAS RL78

Lowest dynamics

Lowest MCU cost
High CPU load

Why RX111 is a suitable MCU for inverter?

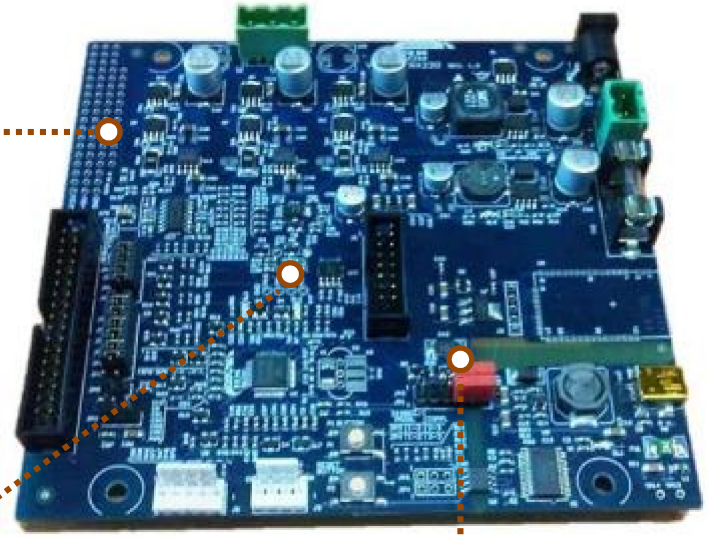
32-Bit MCU
@ 32MHz
8K Data Flash
1.8 to 3.6 V



RX111 MCU Benefits ?

- 50DMIPs with MAC enable complex vector control algorithm implementation
- MC timer to drive one 3-phase motor, full h/w support of hall sensors, encoder
- 12-bit A/D with S/H on-chip for single/three shunts sensorless algorithm
- Temperature sensor on-chip enabling accurate monitoring
- h/w safety: CAC, POE, CRC, WDT, self-test A/D to comply IEC60730-1

Which Ref. design did we build for you?



Vector control Algo.

3-phase AC Brushless motors

Auto-tuning Procedure of any PMAC motor

Sensorless control 1 or 3 shunts

MOSFETs inverter

150W @ 24V

Ext. stage 1.5KW @ $230V_{AC}$

USB powered

Prog/debug connector

Fully isolated

What's inside the kit?

PC GUI s/w

Schematics, Gerber, BOM
Datasheets, User's Manual
HEW Source code

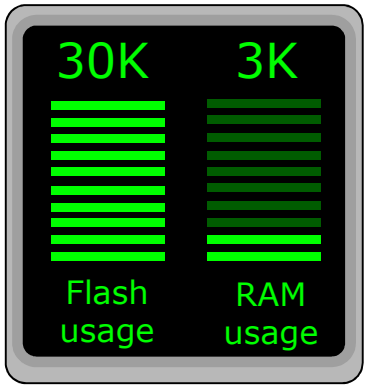
Quick Start Guide

USB powered

Single PCB inverter based on RX111 + AC Brushless motor

What is doing the embedded software?

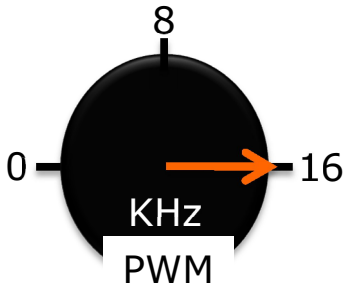
Small footprint

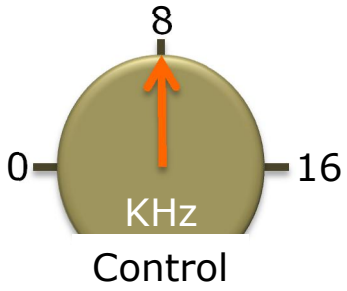


Good Dynamics

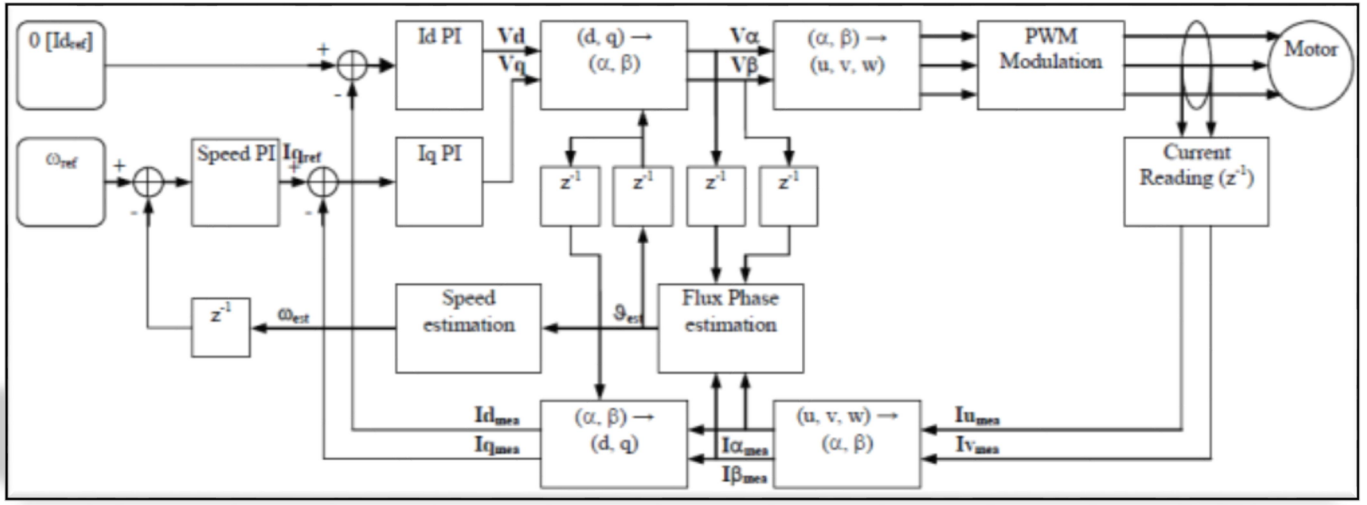
CPU load below 45% at 8KHz control loop

Max. Control loop: 16KHz





Sensorless Field Oriented Control Algorithm



Advanced PC GUI to speed-up evaluation

Custom motor calibration in a few mouse clicks

Alarms status displayed

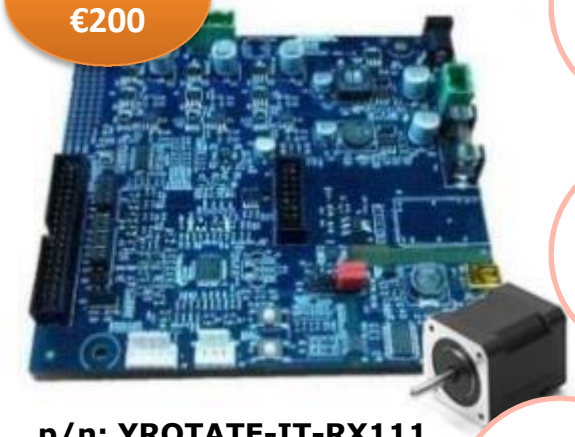
Tuning of key parameters: PI coefficients, start-up, etc.

Real-time torques displayed

Dynamically change PWM frequency and the control loop frequency

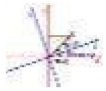
Which benefits do you get from such kit?

Below €200



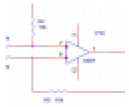
p/n: YROTATE-IT-RX111

Calibrate & drive any 3-phase Brushless AC/DC motors thanks to the Auto-tuning procedure



Use royalty-free vector control s/w using small flash footprint and minimum CPU resources

MCU & MOSFETs on-board, 1.5KW / 230V_{AC} external power stage ready to be connected



For less than €200, it contains: Schematics, Gerber, BOM list, datasheets, User's Manual, list of motors tuned using the reference platform

Feel free to evaluate the RX111 MC kit to reach:

Renesas Electronics Europe