NMIN-0803-H1
DSP56F803BU80

The NMIN-0803-H1 places the Motorola DSP56F803BU30 16-bit Digital Signal Processors on a small, user-accessible board along with supply circuits, RS-232 (or RS-422/485) drivers, CAN bus drivers, and 1 H-Bridge drivers.

FEATURES

- DSP56F803, DSP and MCU functionality in a unified architecture
- MCU-friendly instruction set supports both DSP and controller functions:
  MAC, bit manipulation unit, 19 addressing modes
- Up to 40 MIPS at 80 MHZ core frequency
- Extensive on-chip Flash w/100,000 write cycles typical life
  32K x 16-bits words Program Flash (less 512)
  2K x 16-bit words BootFLASH
  4K x 16-bit words Data Flash
- Word write (16-bit) 20us
- Page erase (512 bytes) 40ms
- Block erase (mass) 100ms
- On chip RAM
  512 x 16-bit words Program Ram
  2K x 16-bit words Data Ram
- Up to 64K x 16-bit words each of external program and data memory
- JTAG/OnCE port for debugging (BDM)
  Examine registers, memory, of peripherals
  Set breakpoints
  Step or trace instructions
- Serial Peripheral Interface (SPI)
  Full-duplex synchronous operation on four-wire interface
  Master or Slave
- Serial Communication Interface (SCI)
  Full-duplex Serial Channel,
  w/Optional Driver, either: TTL, or RS-232, or RS422/485
- CAN 2.0 A/B module
  Programmable bit rate up to 1Mbit
  Low power sleep mode
  TJA1050 CAN Transceiver
  Multiple boards can be networked (MSCA)
  Ideal for harsh or noisy environments, like automotive applications
- 16 shared GPIO lines (depending on other features used)
  Programmable Edge sensitive interrupts
- Two 4-channel 12-bit ADCs

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Single Conversion is 1.7us (8.5 ADC cycles)
Continuous Conversion is 1.2us (6 ADC cycles)
Simultaneous conversion on each ADC
Single ended or differential inputs
Signed or unsigned results
ADC can be sync'd with PWM
Optional interrupt:
at end of scan
out-of-range limit
zero crossing
Programmable high limit
Programmable low limit
Programmable offset

- Up to two General Purpose Quad Timers
  Each channel has its own timebase, 4 16-bit timers
  Count up/down
  Cascadable
  Four channels, each programmable
  as input capture or output compare
  Input capture trigger
  rising edge, falling edge, or any edge
  Output capture action
  set, reset or toggle
  External sync input

- Quadrature Decoder
  32-bit position counter
  16-bit position counter
  16-bit revolution counter (initialized by SW or external event)
  40MHz count frequency (up to)
  Logic to decode quadrature signals
  Configurable digital filter for inputs
  Watchdog timer to detect stalled shaft

- 6-channel PWM module
  15-bit counter with programmable resolutions down to 25ns
  Six independent outputs,
  or three complementary pairs of outputs
  Center aligned or Edge aligned pulses
  Automatic dead time insertion for complementary outputs
  1-TC4424 3-amp 18V dual MOSFET transistor driver chip
  Completed circuit for 2 H-Bridge
  3-current sense pins
  3-fault pins

- WatchDog Timer/COP module
  12-bit counter for Watchdog time out

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COP is CPU clock divided by 16384

- Low Voltage, Stop and Wait Modes

The NMIN-0803 is a complete system and ready to run dedicated applications. Development of the user programming in internal **FLASH** facilitated through JTAG/OnCE connections to host. The NMIN-0803-H1 makes a very cost effective solution, suitable for dedicated control of DC motors, BDCM, stepper motors, solenoids, and other bipolar power outputs, such as general converter/invertor applications, data collection and many networked control applications.