

## Parts Order 1

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I ordered a few components from [Digi-Key](#) earlier this week so that I can begin prototyping the EAM. UPS shows that the parts are out for delivery as of this morning. Hopefully I will have them by lunch time. Listed below are the two most significant items I am receiving.

### Graphic LCD Screen

In order for the EAM master to be fully functional as a stand-alone device it requires a mechanism for user configuration. Configuration settings and status information will be output to the user through a graphic LCD screen.

- [Newhaven Display NHD-C12864EZ-FSW-FTW-P](#) [\$25.00 qty. 1]
  - Power Supply: +3.3V
  - Controller: ST7565P
  - Interface: Serial
  - Resolution: 128 x 64
  - Viewing Area: 86.60mm x 46.30mm
  - Pixel Size: 0.60mm x 0.60mm
  - Backlight: LED (white)
  - Operating Temp: -20°C ~ +70°C
  - [Datasheet](#) [pdf]

I believe that this LCD screen will be a good choice for the EAM for the following reasons:

- Easy to implement in hardware (through-hole connection to PCB)
- Serial interface minimizes microcontroller pin usage
- Available individually and in quantity from multiple distributors
- Large viewing area for price. (I am hoping it will be readable at arm's length)

As a side note, Newhaven Display has an [Application Notes](#) page with potentially useful information (e.g. driving LCD backlight through PWM).

### Microcontroller

The EAM master will need alot of I/O pins.

- [Atmel ATMEGA324P](#) [\$5.59 qty. 1]
  - Series: AVR ATmega
  - Core: 8-bit
  - Power Supply: 2.7V ~ 5.5V
  - Speed: 20MHz
  - Program Memory: 32KB
  - EEPROM: 1KB
  - RAM: 2KB
  - I/O Pins: 32
  - Connectivity: I<sup>2</sup>C, SPI, UART/USART
  - Peripherals: Brown-out Detect/Reset, POR, PWM, WDT
  - Packaging: 40-DIP
  - Operating Temp: -40°C ~ +85°C

- [Datasheet \[pdf\]](#)

I believe that the ATmega324P, and the AVR platform in general, will be a good choice for the EAM for the following reasons:

- Available individually and in quantity from multiple distributors
  - Hobbyist friendly
    - Through-hole package
    - Free compiler and debugger
    - Inexpensive (and homebrew) programmers available (parallel, serial and USB)
    - Extensive online documentation and tutorials
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