LED Cube 4x4x4

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Project Design Goals

To use the HCS12 microcontroller to control 64 LEDs.
Create series of patterns to be displayed using LEDs.
Have ability to toggle individual LEDs using minimal hardware.
Hardware

64 Blue LEDs

16 220Ω resistors

1 Darlington Driver (ULN2803)
Psuedocode

Declare 6 Bit Arrays for light data for all patterns. (Port T,M,AD)

Declare pattern functions.

Set all data direction registers to output.

Enter for loop of 6 iterations

\[
\text{DDR}=\text{PatternArray}[\text{iteration}]
\]

Delay 250mS

end loop

Enter Main

Call All desired Patterns
Schematic - Plane
Timing Diagram

Data (PT0..7, PM0..5, AN6, AN7)

L0
L1
L2
L3

250ms
Further Improvements

To use some keypad to choose pattern

Sound Organ

Increase size of cube using serial in, parallel out shift registers
Questions?