Prototyping Functions

– Step-by-step Functionality (Demos)
  - Miscellaneous
    – *Analog EVM/Boosterpack's*
    – *PinMap Housekeeping*

Joe George, Northeast Digital Field Applications

Texas Instruments

Americas Sales and Marketing

TEXAS INSTRUMENTS

Prototyping Functions

– Step-by-step Functionality (Demos)

- GP Output (GPIO – General Purpose I/O)->Square Wave->Clock
- Read A/D
- I2C/SMBus (Wire)

– Optional WiFi

- STA (station)
- AP (access point)

– Optional Energia

– UI

- Button (GP Input - GPIO, add debounce)
- LCD Display ("Hello")
- Music

– UI - Serial Interface (i.e. Putty for echo "Hello World")

TEXAS INSTRUMENTS

Analog EVMs with ti.com links – NO Wiring

- Interface of Analog EVM's
  - Building Automation Sensors BoosterPack Module
    - http://www.ti.com/tool/BOOSTXL-SENSORS
    - http://www.ti.com/tool/BOOSTXL-BASSENSORS
  - DRV8323RH BoosterPack and MSP430F5529LP code – InstaSpin
  - Fast Prototyping 24bit Sigma-Delta ADC with Energia (TI ADS1220): TIDA-00647

- MSP-EXP430G2 Based Design kits & evaluation modules
  http://www.ti.com/product/MSP430G2553/toolssoftware

TEXAS INSTRUMENTS

MSP-EXP430G2 Based Design kits & EVMs

- MSP-EXP430G2 Based Design kits & evaluation modules Part #Name
    - BOOST-IR   Infrared (IR) BoosterPack Plug-in Module
    - 430BOOST-ADS1118 ADS1118 BoosterPack
    - 430BOOST-CC110L CC110L RF BoosterPack
    - DRV8873SEVM10A H-bridge motor driver with hardware interface and integrated current sensing EVM
    - DRV8873S-Q1EVM Automotive 10A H-Bridge Motor Driver with SPI and Integrated Current Sensing EVM
    - DRV8308EVM DRV8308 Evaluation Module for Three-phase Brushless Motor Pre-driver
    - DRV8313EVM DRV8313 Evaluation Module
    - DRV8701EVM DRV8701 Full Bridge Brushed DC Motor Gate Driver Evaluation Module
    - DRV8702D-Q1EVM Automotive Half-Bridge Brushed DC Motor Gate Driver Evaluation Module D
    - DRV8703D-Q1EVM DRV8703D-Q1 Automotive Half-Bridge Brushed DC Motor Gate Driver With SPI EVM
    - DRV8847EVM   DRV8847 Dual H-Bridge Motor Driver Evaluation Module
    - DRV8847SEVM DRV8847S Dual H-Bridge Motor Driver Evaluation Module
    - DRV8850EVM DRV8850EVM - EVMfor Low-Voltage H-Bridge Motor Driver with LDO Voltage Regulator
    - DRV8912-Q1EVM DRV8912-Q1 multi h-bridges motor driver evaluation module
    - DLP-7970ABP NFC Transceiver Booster Pack

TEXAS INSTRUMENTS

Demo – Pin Definition Reference

– energia-0101E0014\hardware\msp430\variants\launchpad\pins_energia.h

```
- // Pin names based on the silkscreen
- //
- static const uint8_t P1_0 = 2;
- static const uint8_t P1_1 = 3;
- static const uint8_t P1_2 = 4;
- static const uint8_t P1_3 = 5;
- static const uint8_t P1_4 = 6;
- static const uint8_t P1_5 = 7;
- static const uint8_t P2_0 = 8;
- static const uint8_t P2_1 = 9;
- static const uint8_t P2_2 = 10;
- static const uint8_t P2_3 = 11;
- static const uint8_t P2_4 = 12;
- static const uint8_t P2_5 = 13;
- static const uint8_t P1_6 = 14;
- static const uint8_t P1_7 = 15;
- static const uint8_t P2_7 = 18;
- static const uint8_t P2_6 = 19;
```

```
              +-\/-+
      VCC    1|    |20  GND
(A0)  P1.0   2|    |19  XIN
(A1)  P1.1   3|    |18  XOUT
(A2)  P1.2   4|    |17  TEST
(A3)  P1.3   5|    |16  RST#
(A4)  P1.4   6|    |15  P1.7  (A7) (SCL) (MISO)
(A5)  P1.5   7|    |14  P1.6  (A6) (SDA) (MOSI)
      P2.0   8|    |13  P2.5
      P2.1   9|    |12  P2.4
      P2.2  10|    |11  P2.3
              +----+

// Pin names based on the silkscreen
```

TEXAS INSTRUMENTS

Demo – Pin Definition Reference

– energia-0101E0014\hardware\msp430\variants\launchpad\pins_energia.h

```
- // Pin names based on the silkscreen
- //
- static const uint8_t P1_0 = 2;
- static const uint8_t P1_1 = 3;
- static const uint8_t P1_2 = 4;
- static const uint8_t P1_3 = 5;
- static const uint8_t P1_4 = 6;
- static const uint8_t P1_5 = 7;
- static const uint8_t P2_0 = 8;
- static const uint8_t P2_1 = 9;
- static const uint8_t P2_2 = 10;
- static const uint8_t P2_3 = 11;
- static const uint8_t P2_4 = 12;
- static const uint8_t P2_5 = 13;
- static const uint8_t P1_6 = 14;
- static const uint8_t P1_7 = 15;
- static const uint8_t P2_7 = 18;
- static const uint8_t P2_6 = 19;
```

```
                          +-\/-+
               VCC    1|      |20  GND
       (A0)    P1.0   2|      |19  XIN
       (A1)    P1.1   3|      |18  XOUT
       (A2)    P1.2   4|      |17  TEST
       (A3)    P1.3   5|      |16  RST#
       (A4)    P1.4   6|      |15  P1.7  (A7) (SCL) (MISO)
       (A5)    P1.5   7|      |14  P1.6  (A6) (SDA) (MOSI)
               P2.0   8|      |13  P2.5
               P2.1   9|      |12  P2.4
               P2.2  10|      |11  P2.3
                          +----+

       // Pin names based on the silkscreen
```

TEXAS INSTRUMENTS