Mega and XMega Differences

- ▶ Changes driven by end users
- ▶ 8-Bit AVR CPU ISA unchanged, tool chain unchanged
- ▶ Operation from 1.6V to 3.6V, 32Mhz operation from 2.7V
- ▶ Much lower power consumption possible
- ▶ **No 5V compatibility**
- ▶ **No pin compatibility** between Mega and XMega

Mega and XMega Differences

- Multiple Databooks to cover one family of parts
  - Detailed functional descriptions for all the AU-Series (A1,A2,A3 and A4) are in the XMega AU manual (8331F-AVR-04-2013)
  - Electrical, timing, package details for our particular part ATXmega64A1U are in Atmel-8385I-AVR-ATxmega64A1U-128A1U-Datasheet 09/2014

Mega and XMega Differences

- ▶ Consistency between parts/ports/modules
- ▶ Analog functions always on Port A and B.
- ▶ TWI, USART, SPI always on Ports D and E.
- ▶ Module register access defined in C structures: `typedef struct`
- ▶ Module registers consistent across part families

Mega and XMega Differences

- In-system Programming different (PDI)
- Analog functions always on Port A and B.
- TWI, USART, SPI always on Ports D and E.
- Module register access defined in C structures: `typedef struct`
- Module registers consistent across part families

Mega and XMega Differences

	ATMega128	ATXMega64A1U
Flash	128K	64K
RAM	4K	4K
EEPROM	4K	2K
SPI	1	4
TWI	1	4
UART	2	8
8-bit Timers	2	4
TC0, 16-bit Timer	2	4
TC1, 16-bit Timer	2	4
ADC	1, 10-bit	2, 12-bit
DAC	0	2, 12-bit
DMA	0	4 channels
RTC	0	1
Crypto	0	1
USB	0	1
Event System	0	1
IR Comm	0	1
Sleep modes	6	1