SLK Migration from the C32 to the C128

For use with the following part numbers:

Freescale Part Number:
APS12C32SLK
APS12C128SLK (w/ integrated USB-BDM)

CONTENTS

Revision History

Date	Rev	Comments
September 4, 2008	0	Initial Release

Why the Change?

As of March 2008 the APS12C32SLK is no longer manufactured and users are encouraged to migrate to the APS12C128SLK. Why the change? Primarily, due to feedback received from our customers. Second, we really wanted our users of the HCS12 family of application modules to take advantage of some of the newer features available today.

Advantages to the new APS12C128SLK vs. APS12C32SLK
- Increased Memory Size
- Increased Pin Availability
- Ability to use the Serial (SCI) port during debug
- Integrated USB-BDM provides power, programming, and debug via one USB cable.

How this change will effect the user's current implementations/existing code used with the HCS12C32

- Both devices are in the HCS12 "C" family. Therefore, the CPU cores are identical. Op-Codes, Registers, and Register Addresses will remain unchanged.
- The MCU "device" package has changed from a 48-pin QFP to an 80-pin QFP. This means a few things to users:
    - The physical position of some pins might have changed. Table 1 below is a side-by-side comparison of the C32 to C128 pin-mapping as it appears to the MCU_PORT header.
    - The user now has access to more I/O pins
- The default clock has changed from 8 MHz (C32) to 4 MHz (C128).
    - For timers, PWM or clock settings will need to be double checked.
- The overall board size has increased.
    - To accommodate the USB-BDM circuitry and the larger HCS12 package, the physical dimensions of the board have increased. The board can still be plugged into the 60 pin MCU Port header if using the Freescale Project Board.
        - APS12C32SLK Dimensions: 2.2" x 1.6"
        - APS12C128SLK Dimensions: 3.8" x 2.0"
- Removal of the serial monitor
    - Industry is migrating away from serial monitor programming and debug to USB-BDM (Background Debug Mode). The USB-BDM has several key advantages:
        - No resident on-chip serial monitor code. (More memory for applications code)
        - Ability to use the serial port (SCI) for communications during debug.
    - Legacy serial monitor and third-party serial monitor programs can still be found, however they are no longer supported.

Please refer to the APS12C32SLK Users Guide and the APS12C128SLK Users Guide for any additional topics not covered in this document.

Table 1 - SLK Pin Changes - HCS12C32 (48pin) vs. HCS12C128 (80pin)

PBS12C32SLK	PBS12C128SLK	MCU_PORT		PBS12C32SLK	PBS12C128SLK
CSM12C32	CSM12C128			CSM12C32	CSM12C128
48 QFP	80 QFP	Pin-Out		48 QFP	80 QFP
VX	VX	1	2	PE1/IRQ*	PE1/IRQ*
GND	GND	3	4	RESET*	RESET*
PS1/TXD	PS1/TXD	5	6	MODC/BKGD	MODC/BKGD
PS0/RXD	PS0/RXD	7	8		PP7/KWP7
PP5/KWP5	PP0/KWP0/PWM0	9	10		PAD07/AN07
PE0/XIRQ*	PP1/KWP1/PWM1	11	12		PAD06/AN06
PT0/IOC0/PW0	PT0/IOC0/PWM0	13	14		PAD05/AN05
PT1/IOC1/PW1	PT1/IOC1/PWM1	15	16		PAD04/AN04
PM4/MOSI	PM4/MOSI	17	18	PAD00/AN00	PAD00/AN00
PM2/MISO	PM2/MISO	19	20	PAD01/AN01	PAD01/AN01
PM5/SCK	PM5/SCK	21	22	PB4	PAD02/AN02
PM3/SS*	PM3/SS*	23	24	PA0	PAD03/AN03
PE4/ECLK	PA7\ADDR15\DATA15	25	26	PM1/TXCAN	PJ7/KWJ7
PE7/XCLKS*	PA6\ADDR14\DATA14	27	28	PM0/RXCAN	PJ6/KWJ6
PAD02/AN02	PA5\ADDR13\DATA13	29	30	PT2/IOC2/PW2	PP2/KWP2/PWM2
PAD03/AN03	PA4\ADDR12\DATA12	31	32	PT3/IOC3/PW3	PP3/KWP3/PWM3
PAD04/AN04	PA3\ADDR11\DATA11	33	34	PT4/IOC4/PW4	PP4/KWP4/PWM4
PAD05/AN05	PA2\ADDR10\DATA10	35	36	PT5/IOC5	PP5/KWP5/PWM5
PAD06/AN06	PA1\ADDR9\DATA9	37	38	PT6/IOC6	PS2/RXD1
PAD07/AN07	PA0\ADDR8\DATA8	39	40	PT7/IOC7	PS3/TXD1
	PB7\ADDR7\DATA7	41	42		PE0\XIRQ*
	PB6\ADDR6\DATA6	43	44		PE2\RW
	PB5\ADDR5\DATA5	45	46		PE3\TAGLO*\LSTRB*
	PB4\ADDR4\DATA4	47	48		PE4\ECLK
	PB3\ADDR3\DATA3	49	50		PT2\IOC2
	PB2\ADDR2\DATA2	51	52		PT3\IOC3
	PB1\ADDR1\DATA1	53	54		PT4\IOC4
	PB0\ADDR0\DATA0	55	56		PT5\IOC5
	PM1\TXCAN	57	58		PT6\IOC6
	PM0\RXCAN	59	60		PT7\IOC7

Support

For migration questions relating directly from the APS12C32SLK to the APS12C128SLK please contact your regional university programs representative. A list of those contacts can be found at www.freescale.com\universityprograms

For all other technical support questions to get the most out of your support experience, the Freescale University Programs recommends that users follow recommendations 1-3 below:

1. For frequently asked questions (FAQs), latest updates, and listing of known bugs and solutions.	www.freescale.com\universityprograms OR www.axman.com\support
2. Ask your questions to our online developer community	www.freescale.com\forums
3. Ask your questions directly to Freescale representative	www.freescale.com\support

SLKS12MIGEB
Rev. 0
09/2008