16-bit Modular Student Learning Kit
Featuring the HCS12 “DT” family

Use the HCS12DT256 for external bus visibility
Use the HCS12XDT512 for integrated X-Gate features

Common Course Applications
• External addressable interfacing (HCS12DT256)
• Critical, rapid response interrupts using X-Gate (HCS12XDT512)

Use for courses/projects which:
• Include large memory requirements
• Focus on motors or automotive
• Are targeted for intermediate to advanced level

This application module can be:
• Used independently
  ◦ Each kit includes required hardware, CodeWarrior™ Development Software, and informational CD
• Connected with the Freescale project board (PBMCUSLK) for:
  ◦ Increased I/O features
  ◦ A more hands-on approach
  ◦ Larger bread-board area
  ◦ Acceptance of multiple microcontrollers

To order, search by part number on www.freescale.com.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>APS12DT256SLK</td>
<td>Independent Application Module (pictured)</td>
</tr>
<tr>
<td>PBS12DT256SLK</td>
<td>Project Board and Application Module Bundle</td>
</tr>
<tr>
<td>APS12XDT512SLK</td>
<td>Independent Application Module (pictured)</td>
</tr>
<tr>
<td>PBS12XDT512SLK</td>
<td>Project Board and Application Module Bundle</td>
</tr>
</tbody>
</table>
Features

Integrated USB-BDM
- Allows for debug, programming and power to board and device
RS-232 transceiver w/DB9 connector
4 MHz Clock Oscillator
Low Voltage Reset Supervisor
Flexible Power Input Sources
Selectble through Jumpers
- USB Cable: 5V DC, 500 mA max
- 5V DC to 12V DC power jack: 2.5/5.5 mm barrel connector, center positive

User Components Provided
- One DIP Switch, 4-pos
- Two push button switches
- Four LED indicators

Connectors
- 60-pos pin-header providing access to MCU I/O signals
- 2.0 mm barrel connector power input
- 6-pin BDM interface connector
- 3-pos CAN interface connector
- DB9 connector

MC9S12DT256 MCU Specifics 80 QFP
- 256 KB flash EEPROM
- 12 KB RAM
- SAE J1850 byte data link controller

MC9S12XDT512 MCU Specifics 80 QFP
- X-GATE coprocessor
- 512 KB flash EEPROM
- 20 KB SRAM

Microcontroller General Features
- 4 KB EEPROM
- 8-ch, 10-bit, ATD w/external trigger
- 8-bit enhanced capture timer with IC, OC and pulse accumulate capabilities
- 7-ch, 8-bit PWM
- 9 KBI inputs
- 3 CAN channels
- CAN 2.0 A/B PHY w/ 3-pos header
- 2 SCI and 2 SPI channels
- 1 I²C Channel
- 56 GPIO

Specifications
- Module Size: 3.8” x 2.0”
- Power input: +9V typical, +6V to +20V range
- Supplied with USB cable, documentation (CD) and manual

Freescale and the Freescale logo are trademarks or registered trademarks of Freescale Semiconductor, Inc. in the U.S. and other countries. All other product or service names are the property of their respective owners.
© Freescale Semiconductor, Inc. 2008
Document Number: APSS12DT256SLK
Rev 0