Cellular Development Platform

All-in-one Hardware and Open Source Development Environment

Benefits

- Quick-to-market solution for rapid ROI
- Proven hardware platform for increased reliability
- Simplifies development using Linux-based open source software
- Approved for ease of worldwide deployment
- A cost-effective alternative to custom manufacturing
- Service and support backed by an industry leader
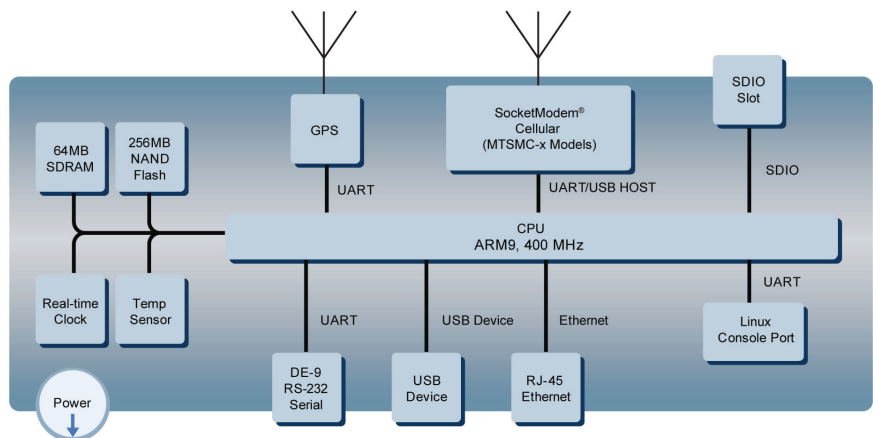- Easily adapts to future technologies

Applications that require device networking capability can now be embedded directly onto select Multi-Tech modems. Multi-Tech's Cellular Development Platform with CoreCDP™ is a complete hardware solution and a complete Linux environment in one. Nowhere else will you find an open Linux development environment and a fully certified hardware offering that includes multiple interfaces (serial, USB, Ethernet and SD card slot) and internal peripherals (including cellular modem and a GPS receiver) in one application-ready end user solution.

The Cellular Development Platform brings together a cellular hardware development kit and Multi-Tech's CoreCDP, a distribution version of the Linux operating system and complete Linux build environment. This allows developers to cross-compile thousands of open source software packages and to create custom applications in a very short period of time. In many cases, existing applications can easily be incorporated and run on the platform with little or no modification. The Cellular Development Platform utilizes the OpenEmbedded framework as the base to provide a custom Linux distribution branch, known as CoreCDP, designed to run on Multi-Tech Cellular Development Platform hardware.

Multi-Tech's field-tested hardware provides a solid base for any embedded cellular application, allowing developers to create gateway access to the cellular network without advanced hardware design knowledge. Multi-Tech's reliable, globally-approved cellular device platform minimizes the need for mixing and matching various hardware pieces, greatly reducing the complexity and cost of the solution and eliminating the need to pursue your own carrier and regulatory approvals, including FCC, IC, UL, PTCRB and R&TTE.
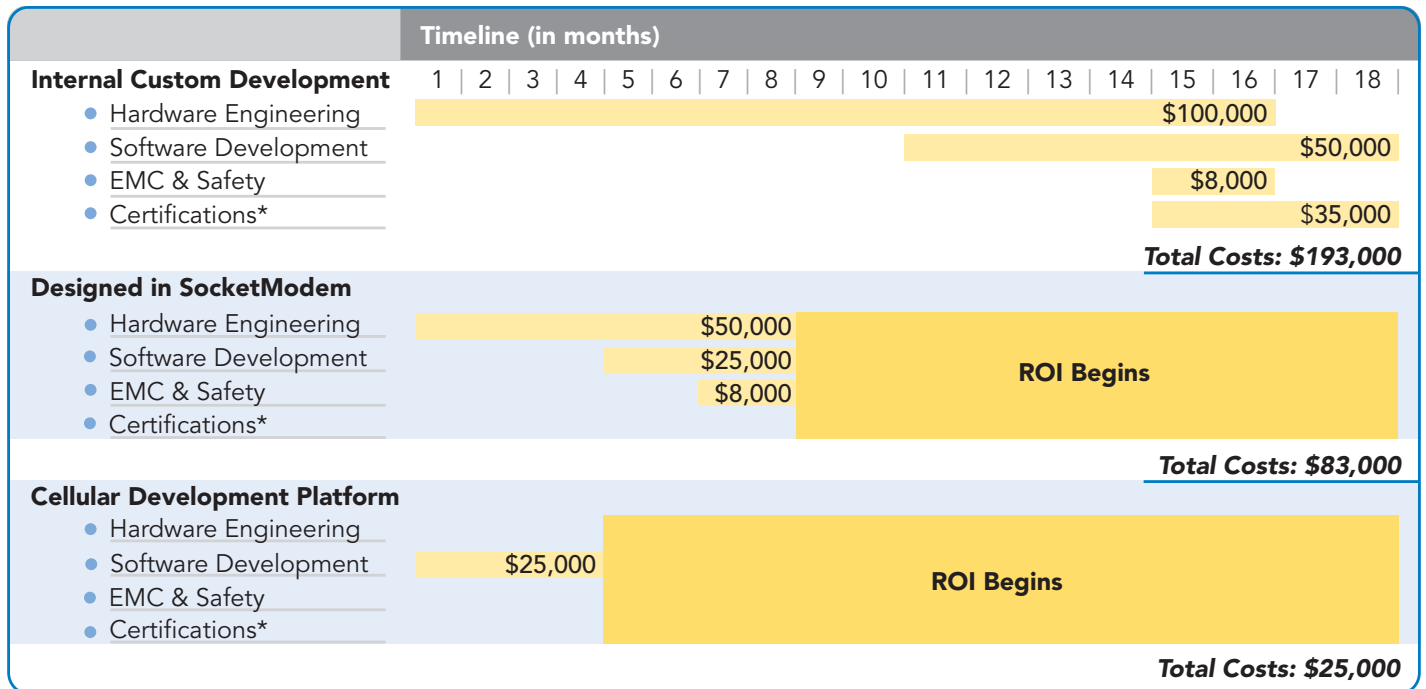
Develop with Multi-Tech's Cellular Development Platform for a flexible, quick and cost-effective way to bring your solution to market. Then deploy it any way you choose depending on your volume and branding needs. Flash the firmware yourself or have Multi-Tech do it along with any customization requirements.

Cellular Hardware Platform Block Diagram

A Cost-Effective, Quick-to-Market Solution

The following table examines the resource and scheduling costs for three approaches for a company wanting to embed an application in a device with cellular capabilities. Starting with an existing PC-based application and no device hardware, the overall project cost and time to market greatly improve when leveraging Multi-Tech platform solutions, providing faster return-on-investment.

	Timeline (in months)
Internal Custom Development	1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
• Hardware Engineering	$100,000
• Software Development	$50,000
• EMC & Safety	$8,000
• Certifications*	$35,000
	Total Costs: $193,000
Designed in SocketModem	
• Hardware Engineering	$50,000
• Software Development	$25,000
• EMC & Safety	$8,000 **ROI Begins**
• Certifications*	
	Total Costs: $83,000
Cellular Development Platform	
• Hardware Engineering	
• Software Development	$25,000 **ROI Begins**
• EMC & Safety	
• Certifications*	
	Total Costs: $25,000

* Certifications costs vary by technology (2G/3G), carrier and country.

A Resource and Cost Comparison of Three Cellular Development Strategies:

Internal Custom Development

Cost: $193,000 & up to 18 months

The hardware development knowledge and cost of creating your own platform is significant. Software development costs not only include the porting costs of the existing application, but any driver development to get the base operating system communicating with all your needed peripherals.

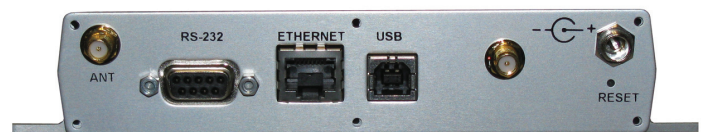## Custom Development with Multi-Tech SocketModem® using the Cellular Development Platform Architecture

Savings: $110,000 & up to 8 months

Multi-Tech's SocketModem provides a Universal Socket footprint, so your device can be designed to take a variety of communication technologies while reducing costs related to carrier and global approvals. Kick-start the process with our Cellular Development Platform, which reduces software development time and facilitates a quicker return-on-investment.

Multi-Tech's Cellular Development Platform

Savings: $168,000 & up to 4 months

Go a step further and leverage Multi-Tech's proven hardware platform in conjunction with our SocketModem technology to remove the need for custom hardware development. This allows you to focus on delivering your application without worrying about hardware development and the related telecom approvals.

Development Platform Hardware Interfaces

Comprehensive Service and Support

Standard Support

Multi-Tech's Cellular Development Platform includes a two-year product warranty on the hardware platform. This includes technical support, via Multi-Tech's online support portal, to assist with troubleshooting and basic hardware configurations.

Developer Community & Support

To support developers using the Cellular Development Platform, the Multi-Tech engineering team created **www.multitech.net**. Log on to the site and access a variety of resources, including product documentation, application development examples, technical articles and much more.

You can also participate in developer forums on **www.multitech.net** to find and share ideas and tips. Moderated by Multi-Tech engineering professionals and the developer community, these forums address a wide variety of development topics to support your projects.

Advanced Developer Support Option

For developers needing dedicated support, Multi-Tech offers a fee-based support option available in 5-hour and 25-hour increments. Advanced Developer Support provides assistance with software issues, the porting of or cross-compiling of applications, use of peripherals and much more.

Software Specifications

Software Development Kit

Linux Kernel 2.6.28.x

Drivers to support all peripherals included on the platform hardware

Programming Languages: Python, Java (JamVM), Perl, Ruby, C / C++, PHP

Networking: PPP, iptables

Web Server: lighttpd

Remote shell: SSH

Database: sqlite3

Network file system: samba

Security: OpenSSL

Documentation & Tools

Documentation

Code examples

Utilities & procedures for configuring & updating devices

Visit **www.multitech.net** for complete details

Hardware Specifications

Processor & Memory

400 MHz ARM9 CPU

256MB NAND flash

64MB SDRAM

2GB SD Flash Card (included)

External Interfaces & Connectors

Power input 9VDC to 32VDC

Connectors: DE-9 RS-232, USB 1.1, RJ-45 10/100 Ethernet, GPS SMA female, & GSM/CDMA SMA female

Slot for SD memory flash card

LEDs for Power, Cellular Link Status, Ethernet Link, & Speed

5 programmable LEDs for application specific use

Internal Peripherals

RTC (Real Time Clock)

Full GPS receiver

2.5G EDGE cellular modem (3G supported in future release)

Debug 3 pins serial console port

Temperature sensor

Cabling

Ethernet cable, serial cable, USB cable, 3-pin serial debug cable, & combo GSM/GPS antenna

Power Supply

100-240V 9V-1.7A changeable blade power supply; three removable blades (US, Euro & UK)

Ordering Information

Product	Description	Region
MTCDP-E1-DK*	EDGE Cellular Development Platform (Modem, GPS, & Developers Kit)	Global
MTCDP-E1†	EDGE Cellular Development Platform (Modem Only)	Global
MTCDP-E1-GP†	EDGE Cellular Development Platform (Modem Only with GPS)	Global
CDPS-25	Developer Support - 25 hours	Global
CDPS-5	Developer Support - 5 hours	Global

* Developers Kit includes modem, GPS expansion card, universal AC power supply with assortment of global plugs, cellular penta-band/GPS antenna, Ethernet cable, RS-232 cable, USB cable, serial debug cable, 2 GB Secure Digital (SD) Flash, and DVD including CoreCDP™ Linux development distribution.

† Modem only includes the device hardware. All accessories sold separately.

Produced in the US of US and non-US components

Features and specifications are subject to change without notice.

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