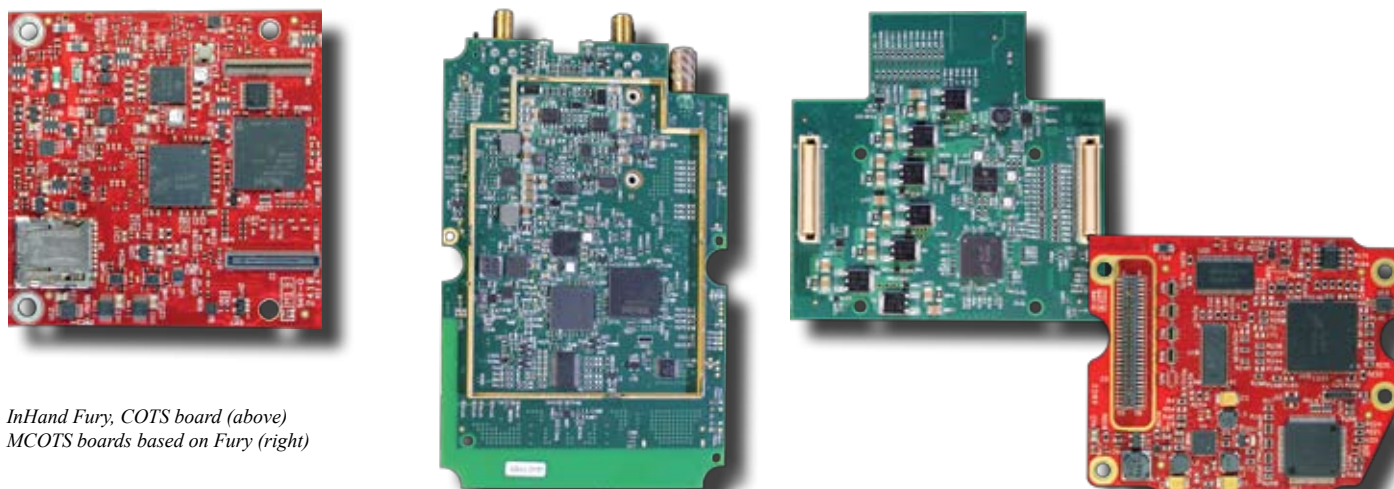


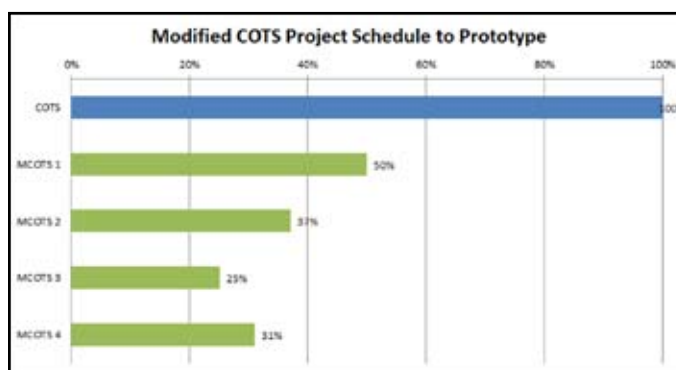
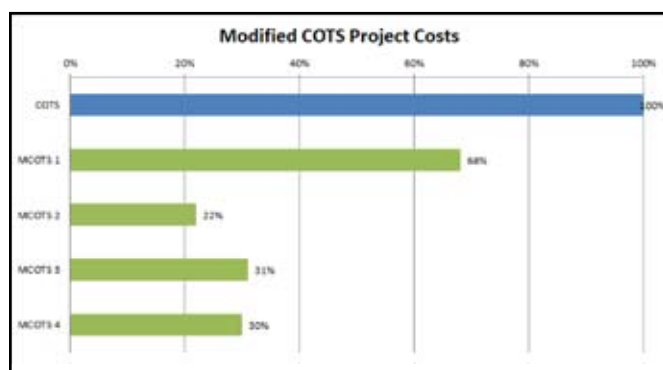
InHand's Modified COTS Design Services: Embedded Circuit Design and Full Device Development with Lower Risk, Cost, and Time-to-Market



*InHand Fury, COTS board (above)
MCOTS boards based on Fury (right)*

InHand offers modified COTS (commercial off-the-shelf) design services that minimize cost, shorten schedule, and reduce risk while optimizing recurring cost of the product. The use of commercial off-the-shelf, or COTS, product has become the standard in military and government system design and procurement since the 1990s. The goal of COTS product is to reduce engineering development costs of larger systems through the purchase of existing components that meet system requirements. This includes electronics such as embedded processor circuitry and software.

Modified COTS takes the COTS concept a step further, where a COTS device design (meaning the electronics, software, and even packaging) is leveraged for specific application design. A completed and validated COTS design is utilized as a starting point and modified to meet specific requirements. Modified COTS devices further reduce cost, schedule, and risk in device design. InHand has further revolutionized the modified COTS approach by adding the ability to leverage not only COTS single board computer technology, but has added rugged modified COTS tablet design with the introduction of the Hydra-F6.



InHand MCOTS Technology Expertise

Systems	Product requirements analysis and prioritization, use case definition, compliance criteria
Low-Power CPUs	InHand COTS boards, featuring ARM Cortex-A and Cortex-M series, Intel x86
Memory/Storage	DRAM, NAND, NOR, eMMC, SD, MMC, SSD
Network Interfaces	Ethernet, Wi-Fi (802.11), Bluetooth, PAN (802.15.4), LTE/cellular, CAN
High Speed Interfaces	PCIe, SATA, USB, LVDS
Serial Interfaces	USB, UART, SPI, I2C, RS-232, RS-422, RS-485, SMBus
Sensing	GPS, ADC, DAC, sensors with serial interfaces
Display Devices	LCD, analog displays, LVDS, MIPI-DSI, HDMI, CMOS, display enhancements, sunlight readable
Touch Screens	Resistive and capacitive touch controllers
Camera	Video camera, still camera, MIPI-CSI, S-video, composite/component video
Audio	Line and/or microphone inputs; Line or speaker outputs; Bluetooth headsets
Special Peripherals	Credit card reader, CAC card reader, RFID, NFC, barcode scanner, biometrics
Power Supply	Switching power supplies (buck, boost, SEPIC), LDO, battery charging/management, peripheral power gating, low noise, wireless power, power optimization
PCB Design	High speed digital (>5 GHz), analog, signal integrity, power integrity, low EMI (MIL-STD-461), thermal management, fine pitch devices, complex stack-ups including micro-via and blind/buried via, Package-on-Package (PoP), custom shapes, RoHS
Software	Boot loader, kernel, BSP, drivers, Linux, Android, Windows, custom OS configuration, lockdown
Security	Security enhanced OS (SE Linux and SE Android), high assurance boot, tamper detection
Mechanical Engineering	Thermal management, MIL-STD-810 shock/vibe/thermals, package design
Enclosure	Size, shape, color, materials, ergonomics, external connections, logo, stenciling, private labeling
Certification	MIL-STD-810, MIL-STD-461, FCC, CE and IC, LTE/cellular, intrinsically safe/ATEX

*MCOTS Project Example
Medical device project:
Mobile HPV Test Controller*



*MCOTS Project Example
Military device project:
Rugged e-Ink SFPDA handheld*



The InHand Advantage

- ◆ Accelerated time-to-market (3-4 month prototype)
- ◆ Regulatory certification and qualification testing
- ◆ Turn-key manufacturing
- ◆ Life-cycle and obsolescence management
- ◆ Long product life support
- ◆ In-house manufacturing test development
- ◆ Program management
- ◆ ITAR and US classified design

Markets Served

- ◆ Military/Defense
- ◆ Internet of Things (IoT)
- ◆ Medical
- ◆ Aviation
- ◆ Test and measurement
- ◆ Transportation
- ◆ Utilities
- ◆ Industrial

Core Competencies

- ◆ Embedded device design: hardware, software, mechanical
- ◆ Design for low power operation
- ◆ MIL-SPEC/Rugged device design
- ◆ Program management
- ◆ Product life cycle management
- ◆ Security
- ◆ Real-time system updates

InHand Electronics, Inc. is an original design manufacturer of single board computers and rugged handhelds for original equipment manufacturers. InHand's products are used in a variety of markets including: military, healthcare, industrial, entertainment, and instrumentation. Designs include: UMPCs, PDAs, IoT devices, wearable computers, tablets, handheld control systems, industrial computers and smart sensors. InHand's products are built on industry-leading technologies such as: Freescale, Intel, Texas Instruments, and Marvell processors and Android, Linux, Ubuntu, and Microsoft operating systems. InHand is an ITAR registered company. InHand products are designed and assembled in the USA. The company's headquarters are located along the I-270 Technology Corridor in Rockville, Maryland.



Designed & Assembled in the USA