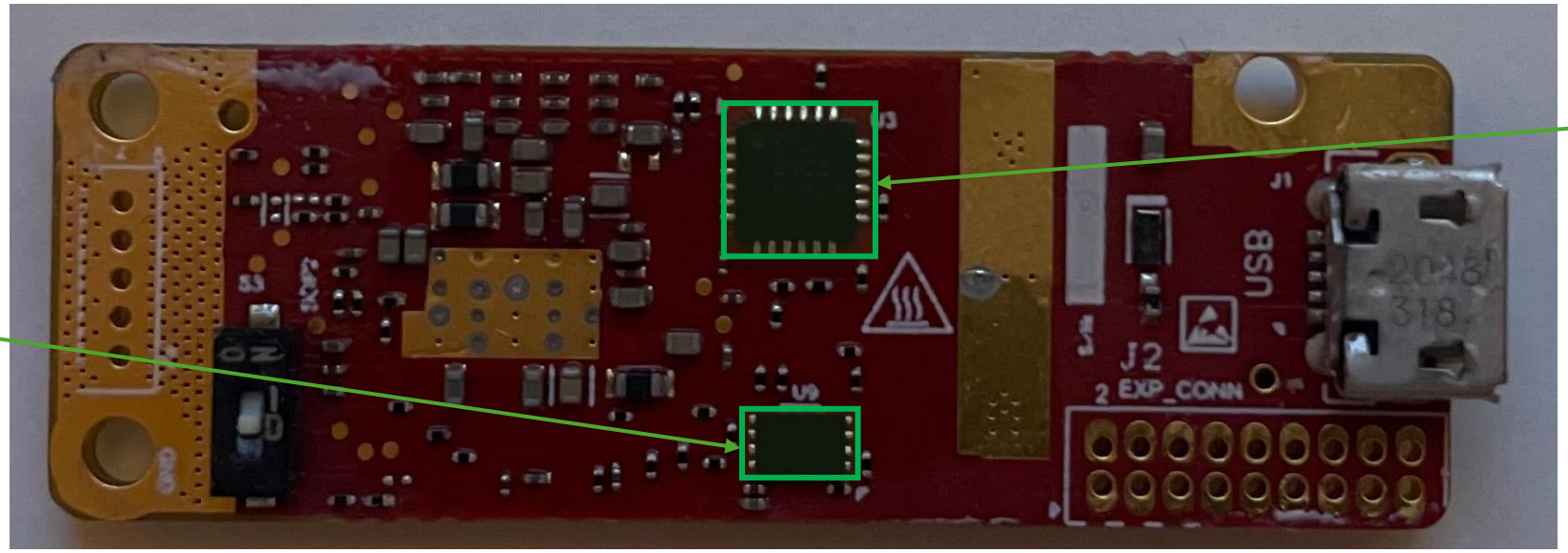
60GHz-Industrial-AoP-Radar-1.pdf



CP2105.pdf

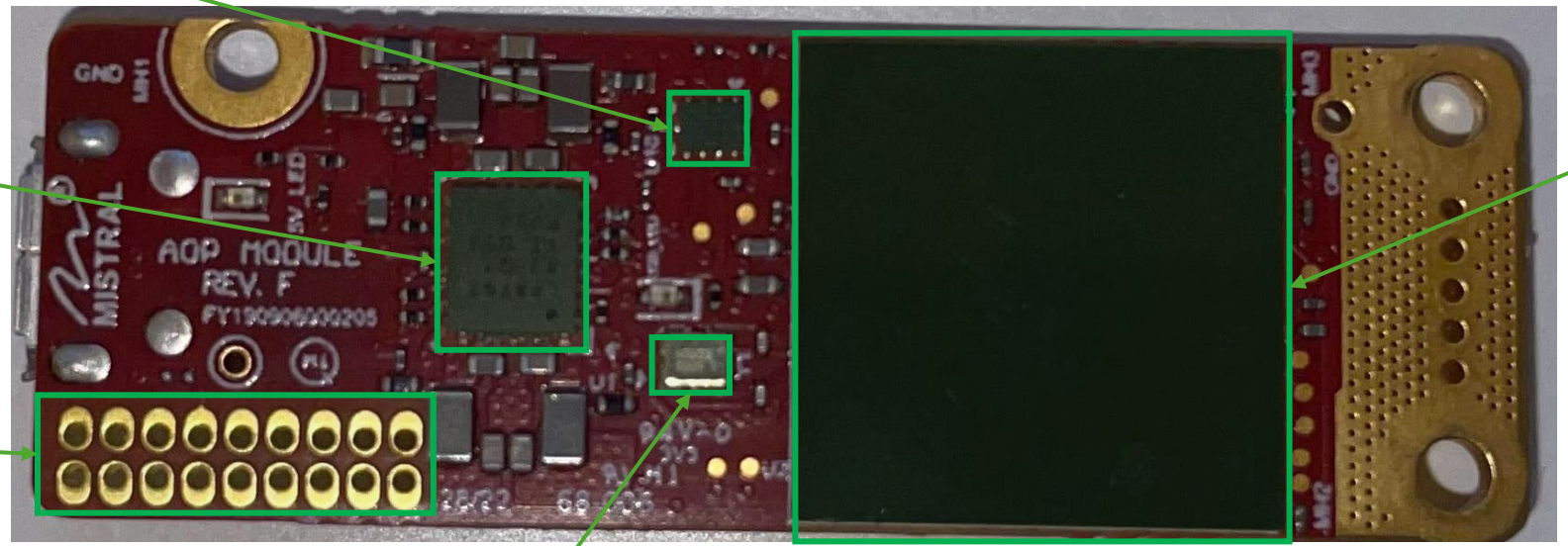
CP2105
USB to UART

QSPI Flash Memory

RS232 MUX

lp87521-q1.pdf

LP8752x-Q1
Buck Converter



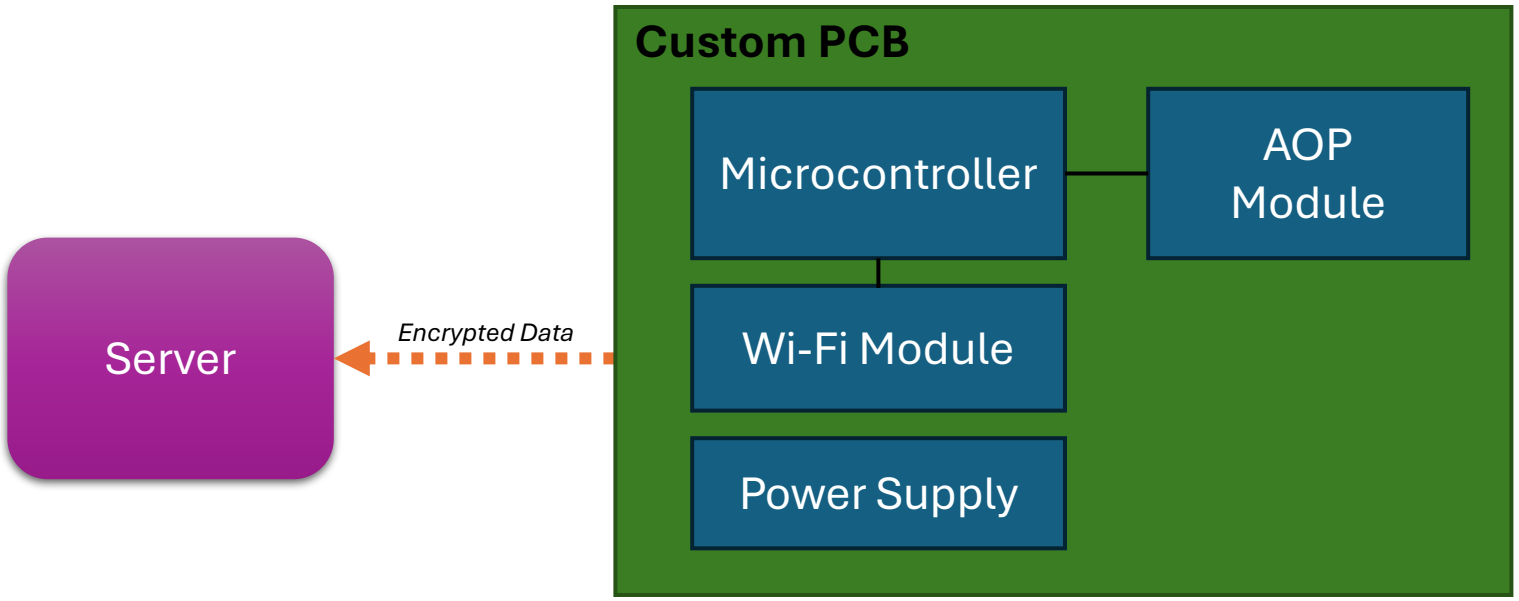
iwr6843aop.pdf

IWR6843AOP
mmWave Sensor

Expansion Header
UART, SPI/CAN, GPIOs, HOST_INT, SOP2, RST, NERROR_OUT, MUX_EN

40 MHz Crystal Oscillator

Potential Architecture



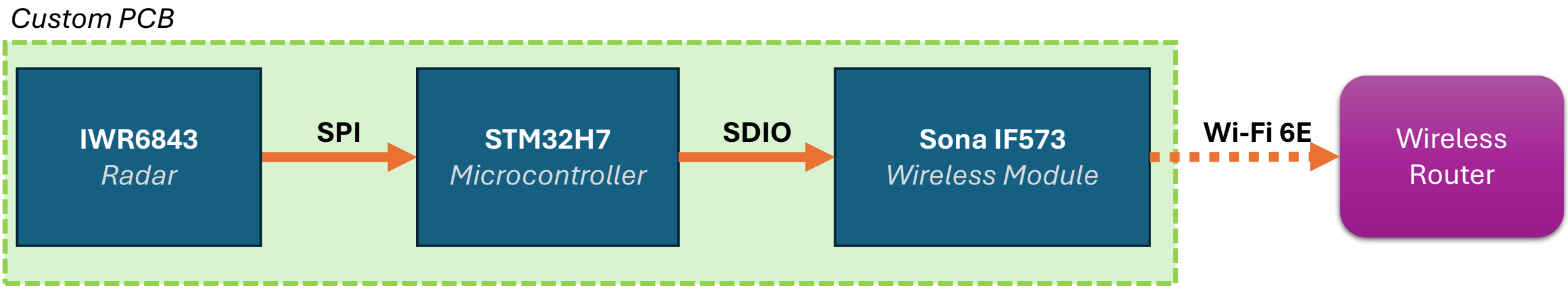
Advantages:

1. Microcontroller can run C/C++
2. The server can run Python, allowing for the use of any libraries
3. Avoid the need to transcompile or rewrite code in C
4. As many radar sensors as required can be connected to the server
5. May require no BGA soldering
6. Avoids time and complexity costs associated with implementing the AOP directly on the board

Disadvantages:

1. Requires the ability to transfer the data produced by the radar early in the computation process
2. Streaming the data before any significant computation has taken place may result in large data transfers
3. Requires writing robust C code for the microcontroller
4. AOP thermal management may be a challenge

Hardware Data Flow Description



SPI - Serial Peripheral Interface
SDIO – Secure Digital Input Output
Wi-Fi 6E – Tri-band 2x2 MIMO IEEE 802.11 WLAN

Estimation of Device Cost

Item	Est. Cost Per Device
Mistral AOP Module	$109
Sona Wireless Module	$29
STM Microcontroller	$10
Passive Components	$15
Connectors and Mounting Hardware	$15
Enclosure	$15
4 Layer Board Fabrication (In USA)	$66
Total Without Assembly	**$259**