

Request for Network Insight

in support of

Rapid Assured Microelectronics Prototypes (RAMP) using Advanced Commercial SoC Chipsets

This S²MARTS announcement is intended to pulse NSTXL's Innovation Network and the Defense Industrial Base at-large to discover potential solutions that will evolve radiation testing. This request is for planning purposes only and does not constitute a Request for Solution or an invitation to submit formal proposals. The Government & NSTXL are not liable for reimbursing any costs associated with response preparation.

This Request for Information (RFI) is seeking input from the US Defense Industrial Base (DIB) on DoD use cases that would benefit from the use of advanced SoC commercial chipsets. In response to this RFI, the DIB should include:

- A high-level description of the use case, including which commercial chipset features are of interest and where the chipset may need personalization.
- A system architecture diagram showing how the chip or System in a Package (SiP) would be packaged onto a board and, as appropriate, what interfaces would be used for communications.

A response also indicates willingness to participate in up to two hours of meetings with the RAMP Government Team within the 2021 timeframe to better understand the use case and workflows. This information will be used for the Government to evaluate workflow updates that could enable direct adoption of advanced commercial chipsets into future DoD systems.

Responses may be submitted via email to **S2MARTS@nstxl.org**. No classified information may be included, and information contained within the response must be marked appropriately. Open to the Public, Membership not required.

There are no formatting restrictions, however responses should be less than 10 pages per Use Case Submission.
(MS Word and/or Adobe PDF files preferred)

Background

The Office of the Under Secretary of Defense (OUSD), Trusted and Assured Microelectronics program (T&AM) and RAMP program are seeking a better understanding of DoD use cases for State of the Art (SOTA) commercial processors and SoCs. RAMP has a phase 1 contract in place with Qualcomm Technologies, Inc. (QTI) exploring a demonstration of direct adoption of advanced SoC chipsets into DoD systems. These chipsets have applications spanning across many key industry segments. Some of the key System in Package (SiP) parts that may be of interest to the DOD for relevant use cases are listed in this section. This RFI is not limited to the SiPs listed in this section.

a. Automotive

The automotive grade platforms differ from the mobile platforms in many ways that could benefit DOD missions, including:

- Higher thermal ranges – the automotive platform supports a Junction Temperature (Tj) of 105C and -40C
- Functional safety - Automotive Safety Integrity Level A (ASIL -A) functional safety for Error-Correcting Code (ECC) on memory (DDR), Digital Signal Processor (DSP) and Neural Processing Unit (NPU)
- Longer product lifetimes

Examples of state of the art (SOTA) automotive processors available through QTI include:

- i. Qualcomm® Snapdragon™ SA8155P processor
- ii. Qualcomm® Snapdragon™ SA515M Processor

b. Internet of Things (IoT)

IoT platforms are designed for low power consumption while maintaining mobile connectivity.

Examples of SOTA IoT SoCs available through QTI include:

- i. Qualcomm® 9205 LTE Modem

c. Robotics

Robotics platforms combine compute performance and machine learning with cutting-edge connectivity.

Examples of SOTA robotics processors available through QTI include:

- i. Qualcomm® QRB5165 Processor

d. Extended Reality (XR)

As virtual reality (VR) and augmented reality (AR) converge for even more immersive user experiences, new use cases are emerging in extended reality (XR). These platforms combine heterogeneous computing, graphics rendering, and artificial intelligence.

Examples of SOTA extended reality processors available through QTI include:

- i. Qualcomm® SXR2130P Processor

Responses are due no later than 12:00PM ET on Friday, 6/4/2021 and may be submitted via email to **S2MARTS@nstxl.org**. No classified information may be included, and information contained within the response must be marked appropriately. Multiple Use Case submissions are allowed, and this Request For Network Insight is open to the general public.