Enhancing Mission-Critical Designs while Reducing SWaP
Processor Portfolio Update, April 2017

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• Embedded Processing product overview page
• Available TI Designs using processor products
• DSP products page on TI's E2E community
# TI Embedded Portfolio Overview

## Embedded Processing

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<td>N/A</td>
<td>Industrial automation, Building automation, Medical, Smart grid, Metering, General purpose</td>
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<td>MSP</td>
<td>MSP 16-bit M3/M4</td>
<td>Home &amp; building automation, Metering, Personal connectivity, Medical, Wearables, Audio, Automotive, IoT</td>
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<td>Enterprise Compute, Avionics, Defense, Telecom and wireless infrastructure analytics, Medical</td>
</tr>
<tr>
<td>Automotive</td>
<td>Driver assist, Infotainment</td>
<td></td>
</tr>
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</table>

## Key Features

- **Multi RF Protocols**
- **Integration**
- **Low power**
- **Security**
- **Ultra-low power**
- **Low or ultra-low power**
- **Certified SW stack and modules**
- **Multi RF Standards**
- **Low power integration**
- **Certified SW stack and modules**
- **Security**
- **DSP core**
- **Real-time control accelerators**
- **Motor control and digital power integration**
- **Dual core architecture (DSP + ARM)**
- **Real-time control integration (Analogs)**
- **Host control integration**
- **Up to 330Mhz**
- **Always-on processing**
- **Connectivity**
- **Low-power**
- **Display**
- **PRU-ICSS**
- **Accelerated multimedia and graphics**
- **Connectivity**
- **Wireless Accelerators**
- **Vehicle control processing**
- **ECC**
- **DFE**
- **JESD68**
- **Connectivity**
- **Wireless Accelerators**
- **Safety**

## Additional Features

- **Low Power**
- **Wireless Low Power Performance**
- **Low Power Performance**
- **DSP**
- **Application**
- **Performance Multicore**
- **Low Power Integration**
- **Certified SW stack and modules running on MCU and Processors**
- **FRAM/Flash**
- **Low Power Integration**
- **Motor control and digital power integration (Analog)**
- **Dual core architecture (DSP + ARM)**
- **Real-time control integration (Analogs)**
- **Host control integration**
- **Up to 330Mhz (32-bit ARM Cortex®-R4F)**
- **TUEV safety certification**
- **Always-on processing**
- **Connectivity**
- **Low-power**
- **Display**
- **PRU-ICSS**
- **Accelerated multimedia and graphics**
- **Connectivity**
- **Embedded Vision Engines (EVE) and DSP**
- **Safety**
**TI DEVICES FOR AEROSPACE/DEFENSE**

### Scalable Solutions
- Solutions from <1 GFLOP to 200+ GFLOPS
- From 600DMIPS to ~20,000 DMIPS
- Up to 4xCortex A15 and up to 8xC66x DSP Core
- Processor SDK: Common software platform across all devices

### High-Throughput Peripherals
- High-speed interfaces such as SRIQ, 1Gb and 10Gb Ethernet, PCIe, and HyperLink: 50Gbps connection to SoCs or FPGAs
- JESD204B for seamless connection to ADC/DAC/AFE

### SWAP and Reliability
- 160 GFLOPS under 10W
- 20,000 DMIPS under 4W
- Extended temperature range available
- Low SER and FIT rates
- Longevity

### High Performance Cores / Accelerators
- C66x DSP Cores
- ARM® Cortex-A15 Cores
- FFT coprocessor
- Digital Up/Down Conversion Accelerator

---

**Avionics**

**TI Multicore SoCs**
- Real-time Processing
- High Performance
- Programmable
- Scalable

**SDR**

**Radar/EW**
Catalog Processors: ARM & DSP Portfolio

Expanding the Processor Leadership

Gather information from the real world...

...control the real world

Sitara Processors

Scalable + Flexible
General purpose ARM-based applications processors
- Scalable performance from sensors to servers
- Best-in-class Linux
- Application-specific accelerators
- Display optimized
- Customer proven ease-of-use

DSP Processors

Low-Power + Performance
DSPs are at the center of embedded solutions
- Real-time, deterministic processing
- High performance
- Power Efficient
- Scalable
- Easily Programmable

Processor SDK – One best-in-class software for easy migration
DSP Roadmap
Public

Now

2017

66AK2H14
- 8x C66x, 1.2 GHz
- 4x A15, 1.4 GHz
- PCIe, USB3, 10GbE, SRIO
- 40x40mm

66AK2L06
- 4x C66x, 1.2GHz
- 2x A15, 1.2GHz
- PCIe, 1GbE, JESD204B
- 25x25mm

C667x
- 4-8x C66x, 1.25 GHz
- 8MB of L2
- PCIe, GbE, SRIO
- 24x24mm

C665x
- 1-2x C66x, 1.25 GHz, 2-3W
- 3MB L2
- PCIe, UPP, GbE, SRIO
- 21x21mm

OMAP-L138
- 1x C674x, 456 MHz, <1W
- 1x ARM9, 456 MHz
- EMAC, USB2
- 13x13, 16x16mm

C674x
- 1x C674x, 456 MHz, <1W
- EMAC, USB2, McASP
- 13x13, 16x16mm

C6652
- 1x C66x, 600 MHz, 1.5W
- 1MB L2
- UPP
- 21x21mm

66AK2G02
- 1x C66x, 600 MHz
- 1x A15, 600 MHz
- GbE, QSPI, 4x PRU, ECC
- 21x21mm

C5545
- 1x C55x DSP, 120MHz
- <150mW
- USB2, ADC, LCD, 3 LDO
- 7x7mm

66AK2H14
- 8x C66x, 1.2 GHz
- 4x A15, 1.4 GHz
- PCIe, USB3, 10GbE, SRIO
- 40x40mm

C667x
- 4-8x C66x, 1.25 GHz
- 8MB of L2
- PCIe, GbE, SRIO
- 24x24mm

C665x
- 1-2x C66x, 1.25 GHz, 2-3W
- 3MB L2
- PCIe, UPP, GbE, SRIO
- 21x21mm

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- EMAC, USB2, McASP
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C6652
- 1x C66x, 600 MHz, 1.5W
- 1MB L2
- UPP
- 21x21mm

66AK2G02
- 1x C66x, 600 MHz
- 1x A15, 600 MHz
- GbE, QSPI, 4x PRU, ECC
- 21x21mm

C5545
- 1x C55x DSP, 120MHz
- <150mW
- USB2, ADC, LCD, 3 LDO
- 7x7mm

66AK2H14
- 8x C66x, 1.2 GHz
- 4x A15, 1.4 GHz
- PCIe, USB3, 10GbE, SRIO
- 40x40mm

C667x
- 4-8x C66x, 1.25 GHz
- 8MB of L2
- PCIe, GbE, SRIO
- 24x24mm

C665x
- 1-2x C66x, 1.25 GHz, 2-3W
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C5545
- 1x C55x DSP, 120MHz
- <150mW
- USB2, ADC, LCD, 3 LDO
- 7x7mm
Steady DSP Core innovation with compatibility

**C66x ISA**
- 100% upward object code compatible
- 4x performance improvement for multiply operation
- 32 16-bit MACs
- Improved support for complex arithmetic and matrix computation

**C67x+**
- 100% upward object code compatible with C64x, C64x+, C67x and c67x+
- 2x registers
- Enhanced floating-point add capabilities

**C674x**
- Best of fixed-point and floating-point architecture for better system performance and faster time-to-market.

**C64x+**
- SPLOOP and 16-bit instructions for smaller code size
- Flexible level one memory architecture
- iDMA for rapid data transfers between local memories

**C64x**
- Advanced fixed-point instructions
- Four 16-bit or eight 8-bit MACs
- Two-level cache

**C67x**
- Native instructions for IEEE 754, SP&DP
- Advanced VLIW architecture

**C66x**
- Floating Point

**C64x**
- Fixed Point
66AK2H14

**Cores & Memory**
- 8x C66x DSP up to 1.2GHz
- 4x ARM Cortex A15 up to 1.4GHz
- 18MB on chip memory w/ECC
- 2 x 72 bit DDR3 w/ECC, 10GB addressable memory

**Multicore Infrastructure**
- Navigator with 16k queues, 3200 MIPS
- 2.2 Tbps Network on Chip
- 2.8 Tbps Shared Memory Controller

**Switches**
- 1GbE: 4 external port switch
- 10GbE: 2 external port switch

**Network, Transport**
- 1.5 Mpps @ full wire-rate
- Crypto: 4.8 Gbps, IPsec, SRTP
- Accelerate layer 2.3 and transport

**Connectivity – 154Gbps**
- HyperLink(100), PCIe(10), SRIO(20), 1GbE(4), 10GbE(2)

**Packaging:** 40mm x 40mm
• Processor Cores & Memory
  – ARM Cortex A15 @600MHz
    • 32KB L1D, 32KB L1P, 512KB L2 cache
  – C66x DSP @600MHz
    • 32KB L1D, 32KB L1P, 1MB L2
  – 1MB shared MSMC SRAM
  – ECC on all memory
  – IO coherency and low latency external memory access through MSMC

• Industrial AccelerationPac
  – 2 Industrial Communication Subsystems real time and low latency
    Industrial Ethernet protocols
  – Programmable real-time IO enables versatile field bus and control
    interfaces
  – Eliminates need for external FPGA

• Other features
  – Crypto, Display Subsystem
  – PCI, USB, SD, MMC

• Secure Device
  – High Secure (HS) device option

• Typical Power
  – 2.5 - 4W

• Package
  – 21x21 mm² BGA; 0.8mm pitch
66AK2L06 (ARM+DSP+HW Accelerators)

- **Cores & memory**
  - 4x C66x DSP up to 1.2GHz
  - 2x ARM Cortex A15 up to 1.2GHz
  - 8 MB on chip memory, ECC

- **Digital Front End**
  - Integrated Up/Down Conversion
  - Connect to AFE with no FPGA

- **Connectivity**
  - 2x PCIe Gen 2
  - 4x GbE (switch)
  - USB3
  - JESD 4 Lanes

- **FFT processing**
  - FFTC: Up to 8Kpts, 84db SNR, 35GFLOPS @8K
  - DSP: Any size FFT, 300db SNR 2.5GFLOPS @8K

- **Network, Transport**
  - 1.5 Mpps @ full wire-rate
  - Crypto: 6.4 Gbps

- **Packaging**: 25mm x 25mm

Applications: Radar, SDR
Wideband Receiver Using a TI DSP+ARM SoC

www.ti.com/tool/TIDEP0081

**Features**

- Easy integration of signal processor to data converters over JESD204B
- Usable bandwidth of two 75MHz channels or a single 100MHz channel when connected to ADC32RF80
- DFE processing for filtering, down-sampling or up-sampling
- FFTC hardware accelerator to offload compute-intensive 2D FFT operation, achieving low latency and high accuracy
- System optimized for avionics and defense applications

**Benefits**

- Direct connection of DSP to data converters reduces cost, size, weight, power (cSWAP) and board space
- Digital front end eliminates need for expensive FPGA or ASIC

**Tools & Resources**

- **TIDEP0060 Tools Folder**
  - Design Guide
  - Reference Design Files

- **Device Datasheets:**
  - 66AK2L06
  - ADC32RF80
  - DAC38J84
  - LMK04828

- Includes a SDK to get your design started
TI Floating Point DSPs – Highest performance

- At 1.25Ghz, C66x core is highest performance floating point DSP
  - Nearly 3x the performance of TS201

<table>
<thead>
<tr>
<th>Competitor device</th>
<th>Best TI Replacement</th>
<th># of 66x Cores</th>
<th>CPU Speed</th>
<th>Package Size</th>
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<tr>
<td>TS201</td>
<td>C6657 or C6678</td>
<td>2 or 8</td>
<td>Up to 1.25GHz</td>
<td>21 x 21 or 24 x 24</td>
</tr>
<tr>
<td>TS202</td>
<td>C6655 or C6657</td>
<td>1 or 2</td>
<td>850MHz to 1.25GHz</td>
<td>21 x 21</td>
</tr>
<tr>
<td>TS203</td>
<td>C6652</td>
<td>1</td>
<td>600MHz</td>
<td>21 x 21</td>
</tr>
</tbody>
</table>

BDTI Score for Floating Point Processors

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Sitara ARM Processor Roadmap

Public

AM5K2E04
- 4x A15, 1.4 GHz
- Network Coprocessor
- PCIe, USB3, 10GbE w/ switch
- 27x27mm

AM5K2E02
- 2x A15, 1.4 GHz
- Network Coprocessor
- PCIe, USB3, 1GbE w/ switch
- 27x27mm

AM43Tx
- 1x A9, 1 GHz
- 2x PRU-ICSS, 3D, QSPI
- GbE Switch, Camera
- 17x17mm

AM335x
- 1x A8, 1 GHz
- 1x PRU-ICSS, 3D, GbE Switch
- DDR3, CAN
- 13x13, 15x15mm

AM5728/6
- 2x A15, 1.5 GHz
- 2x C66x, 750 MHz
- HD, 2x3D, 2xPRU-ICSS, 2xM4
- 23x23

AM5718/6
- 1x A15, 1.5 GHz
- 1x C66x, 750 MHz
- HD, 3D, 2xPRU-ICSS, 2x M4
- 23x23

AM57xr-Next
- 1x A15, <1.5 GHz
- 1x C66x, 750 MHz
- HD, 3D, 2x PRU-ICSS, 2x M4

AM57x
- 1x A15, <1.5 GHz
- 1x C66x, 750 MHz
- HD, 3D, 2x PRU-ICSS, 2x M4

AM5718
- 1x A15, 1.5 GHz
- 1x C66x, 750 MHz
- HD, 3D, 2xPRU-ICSS, 2x M4
- 23x23

AM5718/6
- 2x A15, 1.5 GHz
- 2x C66x, 750 MHz
- HD, 2x3D, 2xPRU-ICSS, 2xM4
- 23x23

Now

2017
AM57x Cortex-A15 Processor

Highest integrated, generally available ARM Cortex-A15 in the market

Benefits
- Unmatched performance in the class
- Scalable family with pin-compatible single and dual core devices with single Processor SDK for all Sitara devices
- Accelerated multimedia
- Real-time control and processing with PRU and C66x DSP
- Industrial protocol support
- Tons of connectivity: PCIe, USB3, SATA and more!

Software and development tools
- Processor SDK with LTS Linux
- MPEG4 and H.264 supported by SDK
  - More support via partners
- TI EVM available
- Industrial Development Kit available soon
AM5728 Cortex®-A15 based Processors

Benefits
- Sitara’s highest performance ARM device w/DSP accelerators
- 10,500 ARM Cortex-A15 DMIPS
- Upgraded graphics performance with HD Video support

Sample Applications
- Human Machine Interface (HMI)
- Industrial PC
- Digital Signage
- High-end Navigation and Consumer

Key Features
- Dual 1.5GHz* Cortex-A15s, 213MHz M4s, and 750MHz** C66x DSPs
- 1080p Video Decode/Encode
- 3D (x2) and 2D acceleration
- Multiple Video Input Ports
- Display Subsystem
- Quad core Programmable Real-time Unit (PRU)/Industrial Communications Subsystem (2x dual core subsys.)
- USB3, PCIe, SATA

Power Estimates
- Typical Power: 2.5-4W (nominal voltage)
- Idle Power: ~650mW

Package: 23x23, 760 pin, 0.8mm

Availability:
- EVM: now
- Production: now

*Nominal voltage max freq. for Cortex-A15’s is 1 GHz
**Nominal voltage max freq. for C66x DSP’s is 600 MHz
***Full Gb support not available until RevB.

Pin muxing may limit peripheral availability
Bandwidth may limit simultaneous use of peripherals
AM5K2E04/02

- **Cores & Memory**
  - 4x/2x Cortex A15 1.25GHz – 1.4GHz
  - 6MB on chip memory w/ECC
  - 72 bit DDR3/3L w/ECC, 8GB addressable memory

- **Multicore Infrastructure**
  - Navigator with 16k queues, 3200 MIPS
  - 2.2 Tbps Network on Chip
  - 2.8 Tbps Shared Memory Controller

- **Switches**
  - 1GbE: 8 external port switch
  - 10GbE: 2 external port switch (**only in AM5K2E04**)

- **Network, Transport**
  - 1.5 Mpps @ full wire-rate
  - Crypto: 4.8 Gbps, IPsec, SRTP
  - Accelerate layer 2,3 and transport

- **Connectivity – 98Gbps**
  - HyperLink(50), PCIe(20), 10GbE(20), 1GbE(8)

- **Power Optimized**
  - 8.6W typical use case at 55C, 1.25GHz for AM5K2E04

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**Packaging: 27mm x 27mm**
Typical Benefits from TI Devices

- Lower power consumption
- Smaller footprint
- Higher DMIPS (+DSP integration)
- Keystone architecture for SoC
TI’s Embedded Processing Ecosystem

Run-Time Software
• Foundational embedded software development kits
• Application specific development kits
• Large libraries of codecs and OS-independent algorithms

Development Tools, Kits & Boards
• Code Composer Studio™ integrated development environment (IDE)
• Wide range of generation, build and debug support
• Design Kits, Development Boards & Evaluation Modules

Support & Community
• TI Design Network: off-the-shelf software, tools and services
• E2E Forums, Wikis and open source development communities available 24/7
• In-person and online training

TI continues to invest heavily in its software and tools ecosystem
Processor SDK
One SDK Experience, committed to mainline Linux and TI-RTOS, with application specific packages

Software is a differentiator
- Consistent software packages for all new devices
- LTS Linux brings higher quality, stability, easier migration
- Common Yocto/OE-Core file systems, kernel, u-boot for Linux
- Common chip support library/driver model for TI-RTOS/SysBIOS

Single foundational SDK: “Processor SDK”

- Common Linux and TI RTOS packages
  - General purpose foundational packages
  - Application specific packages build on foundational packages
    - Industrial SDK: Industrial package for AM3/4/5
    - Includes Profibus, EtherNet/IP, and more protocol

- Regular cadence of updates eases kernel migration
  - Build upon previous versions while maintaining existing features and functionality for a consistent development experience

- [www.ti.com/processorsdk](http://www.ti.com/processorsdk)
DSP Software – Libraries & Codecs Summary

### Libraries
- **Digital Signal Processing**
  - FFT
  - Adaptive filtering
  - Filtering and convolution

- **MATLAB/Simulink**
  - Image processing
  - Math operations
  - Vision analytics

- **Security/Cryptography**
  - AES
  - SHA1
  - 3DES

### Codecs
- **Voice**
  - G.711, G.722
  - G.723, G.729
  - CDMA, AMR(NB/WB)
  - EVRC, EVRC-B
  - OPUS

- **Video**
  - H.263
  - H.264
  - MPEG2
  - MPEG4
  - VC1/WMV9 Decode
  - JPEC, JPEG2K
  - H.265 Beta

- **Audio**
  - MPEG1 Layer2
  - AAC LC/HE
  - AC3 2.0/5.1
  - Sample rate conversion

- **Fax**
  - T.38
  - Fax modem

- **Image Processing**
  - Edge detection
  - Boundary
  - Morphology

- **Voice and Fax**
  - Line echo cancellation
  - Voice activity detection
  - Acoustic echo cancellation
  - Beam forming
  - Noise reduction

- **Visit the [DSP wiki](#) for more information**

- **Free libraries are available online for Digital Signal Processing, Image processing, and Voice and Fax**
One place for DSP Libraries

## Core Benchmarks

The benchmarks in the table below are for a single core. See device benchmarks for multicore performance.

<table>
<thead>
<tr>
<th>Processor core</th>
<th>C66x DSP core</th>
<th>C674x DSP core</th>
<th>ARM® Cortex®-A15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware platform used</td>
<td>C6657 EVM</td>
<td>C6748 LCDK</td>
<td>AM5728 EVM</td>
</tr>
<tr>
<td>Devices featuring benchmarked core</td>
<td>C66x DSPs</td>
<td>OMAP-L138</td>
<td>66AK2x DSPs</td>
</tr>
<tr>
<td></td>
<td>66AK2x DSPs</td>
<td>C6748</td>
<td>Sitara AM57x SoC’s</td>
</tr>
<tr>
<td>Function benchmarked</td>
<td>C66x execution time</td>
<td>C674x execution time</td>
<td>ARM Cortex-A15 execution time</td>
</tr>
<tr>
<td></td>
<td>C66x cycles</td>
<td>C66x µs @ 1GHz</td>
<td>C674x cycles</td>
</tr>
<tr>
<td>Complex FFT (256 pts) - SP floating point¹</td>
<td>1782</td>
<td>1.78</td>
<td>2401</td>
</tr>
<tr>
<td>Complex FFT (1k pts) - SP floating point¹</td>
<td>6269</td>
<td>6.27</td>
<td>10950</td>
</tr>
<tr>
<td>Real block FIR - fixed point 128 samples, 16 coeff</td>
<td>262</td>
<td>0.26</td>
<td>386</td>
</tr>
<tr>
<td>Real block FIR - SP floating point 128 samples, 16 coeff</td>
<td>1345</td>
<td>1.35</td>
<td>1406</td>
</tr>
<tr>
<td>Real block FIR - SP floating point 256 samples, 16 coeff</td>
<td>2625</td>
<td>2.63</td>
<td>2735</td>
</tr>
<tr>
<td>Complex block FIR - SP floating point 64 samples, 16 coeff</td>
<td>1334</td>
<td>1.33</td>
<td>2221</td>
</tr>
</tbody>
</table>

¹ Associated TI library: FFTLIB for C66x DSPLIB for C674x

² DSPLIB
## Operating System Options

<table>
<thead>
<tr>
<th>OS</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QNX</strong></td>
<td>Available today on AM57x development boards</td>
</tr>
<tr>
<td><strong>Wind River</strong></td>
<td>VxWorks 7 Available today on AM3x, AM4x</td>
</tr>
<tr>
<td><strong>Green Hills</strong></td>
<td>INTEGRITY RTOS available today on AM57x development boards</td>
</tr>
<tr>
<td><strong>PikeOS</strong></td>
<td>ARINC 653 and DO178B/C</td>
</tr>
</tbody>
</table>
## ONLINE TRAINING

### Quick Web Access Links

- **TI Training Home Page**
  (scroll down for search and selections)

- **Sitara C66x DSP**
Clock and Power Companion Devices
High speed signal chain solutions available today

- **ADC32RF45**
  - Dual, 14-bit, 3 GSPS ADC
  - Noise Floor: -155 dBFS/Hz
  - SNR: 58.0 dBFS @ fIN = 1.78 GHz
  - JESD204B subclass 1
  - Ch. Isolation: 95 dB @ fIN = 1.8 GHz

- **LMH4012**
  - 8 GHz GBW Fully Differential Amp, Usable bandwidth from DC to 2 GHz
  - DC or AC coupled operation
  - HD2: -80 dBc @ 500 MHz

- **LMX2592**
  - 9.8 GHz PLL with int. VCO
  - -106 dBc/Hz PH @ 100 kHz offset
  - 49 fs RMS Jitter (12 kHz to 20 MHz)
  - for 6 GHz

- **TMP461**
  - 1.8 V remote & local temp sensor
  - Programmable non-ideality factor
  - I2C/Smbus

- **LMH3404**
  - 7 GHz GBW, Dual Channel FDA
  - Usable bandwidth from DC to 2 GHz
  - 20dB fixed gain
  - HD2: -84 dBc @ 500 MHz

- **DAC38RF98**
  - Dual, 14-bit, 9 GSPS DAC
  - Differential output
  - 6x-24x Interpolating
  - Internal 6 & 9 GHz PLL
  - JESD204B subclass 1

- **LMK04828**
  - Clock distribution and jitter cleaner
  - < 100 fs RMS jitter, JESD204 support

- **LMK31530**
  - 3V to 14.5V, 30A Power Module

- **66AK2L06**
  - Multicore DSP+ARM KeyStone II System-on-Chip (SoC)
  - Support up to 4x Lane JESD204A/B.

- **TPS54116-Q1**
  - DDR Power Solution with 4-A, 2-MHz, VDDQ DC/DC Converter, 1-A VTT LDO and VTTREF

- **TPS54122**
  - Dual Output, High Efficiency 3A Switcher + 3A Low Noise LDO

- **TPS54136**
  - Q1 DDR Power Solution with 4-A, 2-MHz, VDDQ DC/DC Converter, 1-A VTT LDO and VTTREF

- **TPS7A47**
  - 36-V, 1-A, 4.17-μVRMS, RF LDO

- **TPS7A85**
  - 6.5-V, 4-A, 4-μVRMS, LDO

- **TRF3722**
  - Quadrature Modulator with Integrated Wideband PLL/VCO
  - Modulator Supports 400 to 4200 MHz
  - OIP3 at 1800 MHz = 30 dBm

- **LMZ31530**
  - 3V to 14.5V, 30A Power Module

- **LMH3404**
  - 7 GHz GBW, Dual Channel FDA
  - Usable bandwidth from DC to 2 GHz
  - 20dB fixed gain
  - HD2: -84 dBc @ 500 MHz

- **DAC38RF93**
  - Dual, 14-bit, 9 GSPS DAC
  - Differential output
  - 6x-24x Interpolating
  - Internal 6 & 9 GHz PLL
  - JESD204B subclass 1

- **TPS7A47**
  - 36-V, 1-A, 4.17-μVRMS, RF LDO

- **LMH3404**
  - 7 GHz GBW, Dual Channel FDA
  - Usable bandwidth from DC to 2 GHz
  - 20dB fixed gain
  - HD2: -84 dBc @ 500 MHz
Complete power solution for Processors

5 VDC Supply

Sequencing

DC/DC

DC/DC

LMZ31530
3V to 14.5V, 30A Power Module

DC/DC

LMZ31503
3V to 14.5V, 3A Power Module

DC/DC

Dual LDO

TPS7A89
Dual, 2-A, Low Noise (3.8-μVRMS), LDO Voltage Regulator

TPS54116-Q1
DDR Power Solution with 4-A, 2-MHZ, VDDQ DC/DC Converter, 1-A VTT LDO and VTTREF

TPS65086
Configurable Multirail PMU for Multicore Processors

V CORE

V I O Rail (1.8V)

V I O Rail (2.8V)

V I O Rail (3.3V)

V AUX

V REF

PMIC

Multicore Processor

DDR Power

V TT_REF(1)

V TT (2)

V TT_REF(2)
Summary

- TI Broadest Portfolio of processors with focus on size, performance and power
- TI provides the tool and software infrastructure to harness the capabilities
- Commitment to longevity and support needed for long life-cycle products