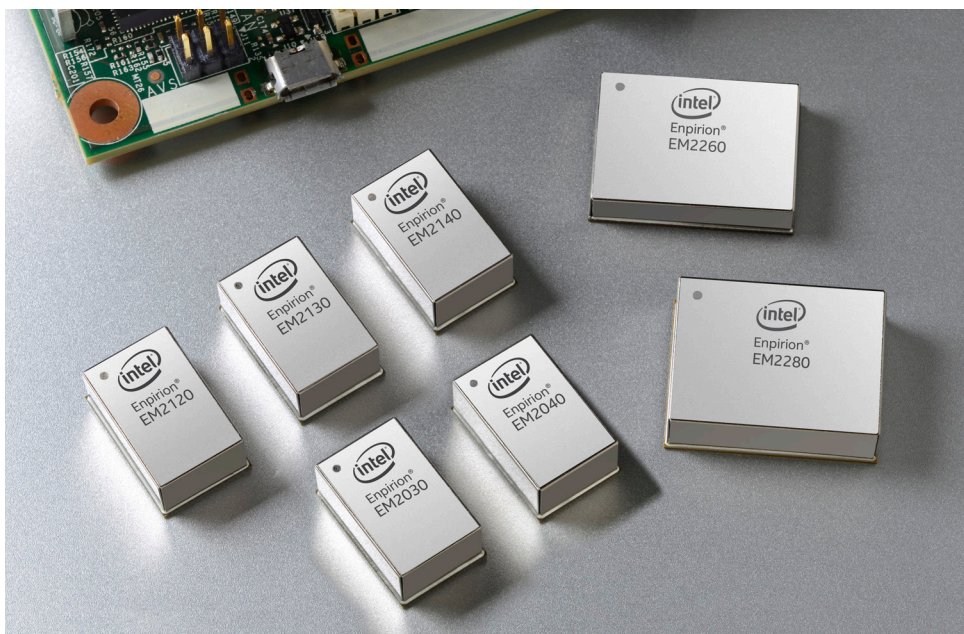


# Digital PowerSoC Modules

From Intel® Enpirion® Power Solutions



**FLEXIBLE  
INTELLIGENT  
POWER DENSE  
FPGA-OPTIMIZED**

## Footprint-Compatible Family of High-Power Digital PowerSoCs

The EM2xxx series is a family of digital 20 A, 30 A, 40 A, 60 A, and 80 A highly integrated PowerSoCs from the Intel® Enpirion® Power Solutions line. This footprint-compatible and scalable family of digital PowerSoCs is designed to simplify the complex task of building high-performance FPGA and other embedded systems.

With a highly efficient and dense footprint, a digital control architecture, and a PMBus\* digital communication and control interface, the series enables meaningful system power savings and shrinks board size so that users can leverage the full capability of advanced FPGAs, ASICs, CPUs, and other embedded devices while minimizing both system power and total board space.

	EM2120	EM2130   EM2030 <sup>†</sup>	EM2140   EM2040 <sup>†</sup>	EM2260	EM2280
Load Current	20 A continuous	30 A continuous	40 A continuous	60 A continuous	80 A continuous
V <sub>IN</sub> Range	4.5 V to 16 V	4.5 V to 16 V	4.5 V to 16 V	4.5 V to 16 V	4.5 V to 16 V
V <sub>OUT</sub> Range	0.7 V to 5 V	0.7 V to 3.6 V	0.5 V to 1.325 V	0.5 V to 1.3 V	0.5 V to 1.3 V
Package Height	6.8 mm	6.8 mm	6.8 mm	5 mm	6.8 mm
Package Footprint	11 mm x 17 mm Footprint-Compatible			18 mm x 23 mm Footprint-Compatible	
Programmability and Telemetry	<ul style="list-style-type: none"> <li>• PMBus* compliant interface</li> <li>• Fully programmable and scalable through PMBus or resistor set</li> <li>• Integrated telemetry (V<sub>IN</sub>, V<sub>OUT</sub>, I<sub>OUT</sub>, Temperature) and system health monitoring</li> </ul>				

<sup>†</sup> The EM2030 and EM2040 devices offer a simple resistor programmable variant of the EM2130 and EM2140 devices where PMBus support is not required.

## OPTIMIZED FOR POWER PERFORMANCE

- <0.5% accuracy and <1% ripple†
- Multi-mode nonlinear control loop enables fast transient response with minimal output deviation and minimal output capacitance†
- Defined, designed, and validated as a complete solution with Intel FPGA systems

### Intel® FPGA V<sub>CC</sub> Supply Transient Power Performance: ≤2% V<sub>OUT</sub> Deviation



V<sub>IN</sub> = 12 V, V<sub>OUT</sub> = 0.9 V, 15 A Load Step

## OPTIMIZED FOR EASE OF DESIGN

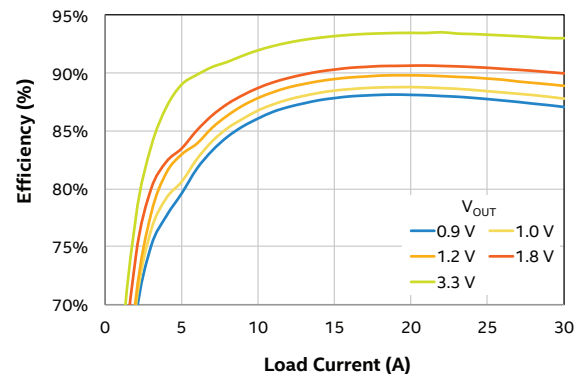
- Highly integrated form factor and pre-configured to deliver the benefits of digital power without the complexity of digital power design
- Program, test, and customize Intel Enpirion digital PowerSoCs with Intel Enpirion Digital Power Configurator graphical user interface tool
- Family of footprint-compatible devices enables maximum design scalability, reuse, and flexibility



## OPTIMIZED FOR SYSTEM DESIGN

- Reduce bulk capacitance for a more compact and cost-effective design
- High efficiency and excellent thermal design with minimal derating eliminates the need to oversize the power supply
- Tiny total solution footprint maximizes power density and enables easier PCB design and more placement flexibility†
- Implement intelligent system power management with access to real-time telemetry and comprehensive system health monitoring

### EM2130 Efficiency, V<sub>IN</sub> = 12 V



[www.intel.com/digitalpower](http://www.intel.com/digitalpower)