



Application Brief: AMD Print Imaging

Optimal Price/Performance, and Unrivaled Processor Flexibility and Software Scalability for Low Cost, Value-add Printing and Imaging

Designers of next-generation printing and imaging solutions seek the freedom and flexibility to enable advanced value-add services while minimizing hardware, software and development expenses. They're increasingly constrained by the cost, coding and maintenance inefficiencies imposed by legacy ASIC, DSP and FPGA processors, and burdened by antiquated system architectures and narrow processor support ecosystems that limit hardware and software scalability.

AMD addresses these challenges head-on with a comprehensive portfolio of processing solutions for printing and imaging systems spanning from midrange multifunction printers to enterprise-class large format and production printers. Providing a wide breadth of performance, power and price options – with support for both x86 and ARM® processing architectures and software ecosystems – AMD enables OEMs to provide highly differentiated printing and imaging solutions and services that can lower their customers' total cost of ownership.

AMD PROCESSOR ARCHITECTURE BENEFITS

Where previously printing and imaging processing functions were partitioned across heterogeneous chipsets comprised of control CPUs, ASICs and/or DSPs and FPGAs, AMD's Embedded SOC and discrete graphics solutions can unify these functions under a single processor leveraging advanced GPU compute capabilities. In this architecture, the onboard GPU accelerates the computation of image processing algorithms via its massively parallel processing power, while consolidating scan and print pipeline processing and general control processing functions onto a common processing platform.

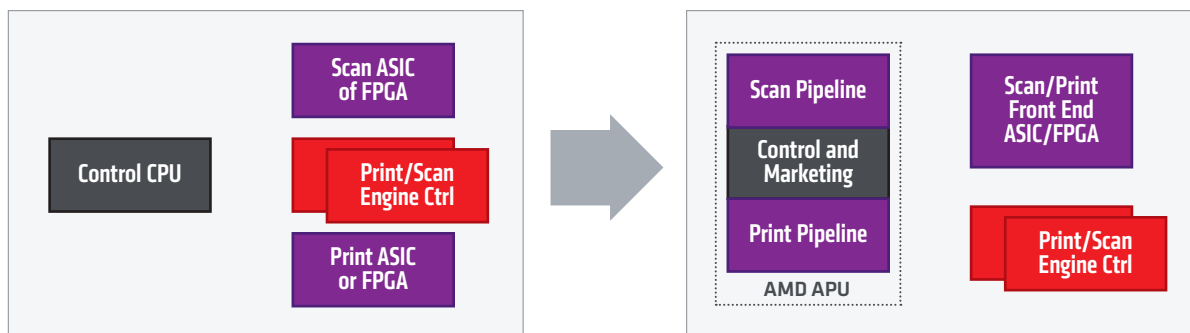
**AMD PRINTING AND IMAGING
PROCESSOR SOLUTIONS**

- ▲ **x86 SOC Platform**
*AMD Embedded G-Series
and R-Series SOC*

- ▲ **x86 APU Platform**
*AMD Embedded G-Series
and R-Series APUs*

- ▲ **Discrete Graphics**
AMD Embedded dGPU

This approach helps reduce BOM costs and simplifies hardware complexity while boosting processing performance, enabling faster, higher quality scanning and printing, and advanced, revenue-generating value add-services including document management, data analysis and more. What's more, system designers can exploit pin and software stack compatibility across select processors throughout AMD's portfolio to maintain design continuity and streamline development cycles across their printing and imaging product portfolios.



AMPLIFIED PROGRAMMING EFFICIENCY

Printing and imaging system designers can quickly and easily harness the parallel processing power of AMD's GPU compute capabilities leveraging the open standard, cross-platform OpenCL™ and OpenGL development tools. Providing the ability to develop and maintain unified, portable source code via a proven, non-proprietary programming platform, OpenCL and OpenGL enable developers to achieve significant programming efficiency gains and preserve the value of their source code for future product generations. Additionally, AMD provides a large library of OpenCL optimized compute functions for printing applications in the form of a vertical development kit (VDK) that will simplify the implementation of the printer software.

ADDITIONAL BENEFITS

End-to-End Processing Agility – AMD Embedded SOCs can accelerate algorithm processing across scan pipelines (image correction, image enhancement, image compression and decompression, storage to memory) and print pipelines (vector image processing and raster image processing)

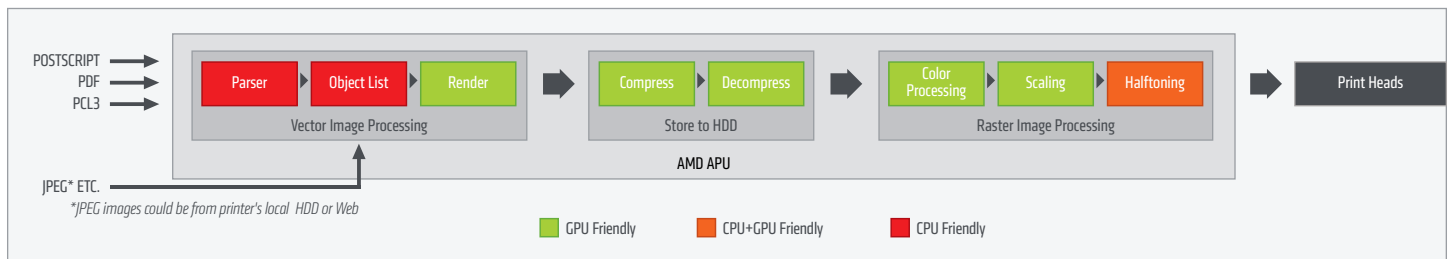
Power Efficiency – AMD processors are available in a wide range of thermal design profiles (TDPs) starting from 5 watts, and are well suited to meet Energy Star and Lot 26 certification standards.

Security – AMD processors contain an onboard AMD Secure Processor designed to meet stringent regulatory security specifications demanded by printer OEMs.

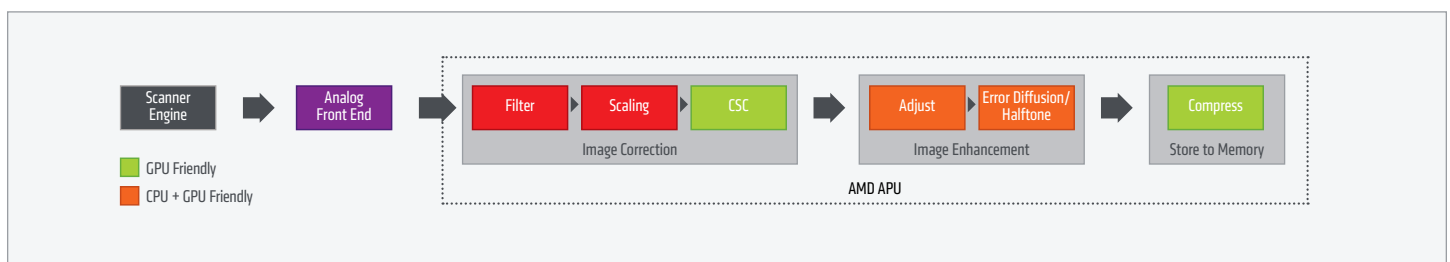
Parallel Processing Performance – Heterogeneous System Architecture (HSA) balances CPU and GPU workloads for optimal processing performance, reducing latencies and boosting access to shared cache memory

Supply Longevity – AMD's planned processor longevity extends to up to 10 years, providing customers with a long-lifecycle support roadmap.

Print Pipeline



Scan Pipeline



AMD.com/embedded

