BUILT ON Power™

Power Architecture® MCUs

PXD20 Family Built on Power Architecture® Technology

Quality industrial display solutions

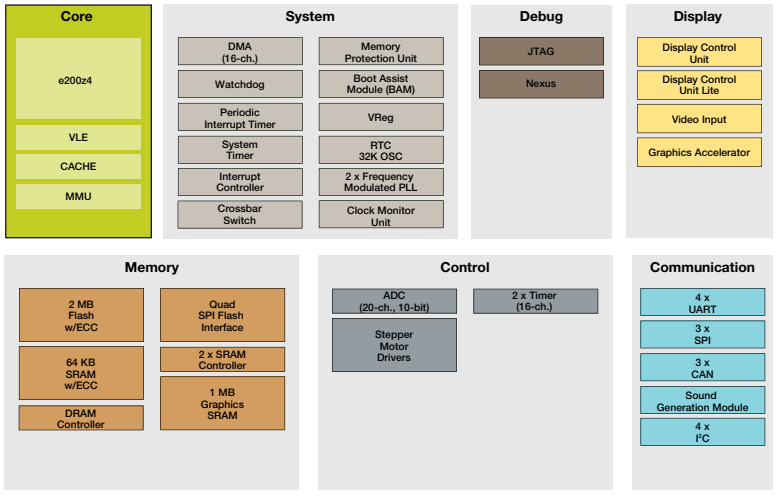
Target Applications

- Factory display units
- Building control display units
- Ruggedized displays
- Industrial instrumentation

Overview

The PXD20 family of 32-bit MCUs built on Power Architecture® technology provides a cost-effective, single-chip display solution for the industrial market. Integrated TFT drivers with digital video input ability from an external video source, significant on-chip memory (including dedicated graphics memory) and low-power design methodologies provide flexibility and reliability in meeting display demands in rugged environments. The platform architecture includes on-chip display control units that directly drive up to two TFT displays. The PXD20 family offers you a high-quality industrial display solution.

PXD20 Block Diagram



freescale™

Enablement Ecosystem

The PXD20 family of MCUs is supported by the Tower development system, the complimentary MQX™ RTOS and the Swell PEG GUI development software enabling shorter development cycles.

Low-Power Design

- Designed for dynamic power management of core and peripherals
- Software-controlled clock gating of peripherals
- Multiple power domains to minimize leakage in low-power modes

Key Features

- Two display control units for direct drive of up to two TFT LCD displays with WVGA resolution
  - Single controller can drive a TFT LCD display with XGA resolution
- Graphics accelerator supporting OpenVG 1.1
- Digital input for video and data
- Memory:
  - 2 MB on-chip flash memory with ECC
  - 1 MB on-chip non-ECC graphics SRAM with two-port graphics SRAM controller
- Stepper motor controller
- 10-bit ADC
- Two 16-channel timers
- DRAM controller—DDR1/2, LPDDR

Challenges and Solutions

System Challenges	PXD20 Solutions
Reducing System Costs and Simplifying Design	• Integrated display controller reduces HMI design complexity • On-chip flash enables graphics generation without the need for external DRAM • On-chip quad SPI flash controller and on-chip DRAM controller can be utilized if additional memory is required • Stepper motor capability can be included in the design with on-chip controller
Creating an Easy-to-Use Human-Machine Interface (HMI) Application	• TFT LCD controller can drive up to two TFT LCD displays, providing a more feature-rich HMI solution • Swell PEG embedded graphics software provides development tool support • Dedicated on-chip 1 MB graphics SRAM • Digital video inputs are offered in a variety of formats, including RGB666, RGB565, monochrome and YCbCr422

Documentation

Freescale Doument Number	Title	Description
PXD20 PB	PXD20 Microcontroller Product Brief	Device family summary

Selector Guide

Product Number	Temp Ranges	Features	Package	Speed
PXD2020	-40°C to +105°C	e200z4 core, 125 MHz, 2 MB flash (ECC), 64 KB RAM (ECC), 1 MB graphics RAM, graphics accelerator, TFT LCD controller, 10-bit 16-ch. ADC, stepper motor controller	176 LQFP,	125 MHz
PXD2020	-40°C to +105°C	e200z4 core, 125 MHz, 2 MB flash (ECC), 64 KB RAM (ECC), 1 MB graphics RAM, graphics accelerator, 2x TFT LCD controllers, 10-bit 20-ch. ADC, stepper motor controller	208 LQFP	125 MHz
PXD2020	-40°C to +105°C	e200z4 core, 125 MHz, 2 MB flash (ECC), 64 KB RAM (ECC), 1 MB graphics RAM, graphics accelerator, 2x TFT LCD controllers, 10-bit 20-ch. ADC, stepper motor controller, DRAM controller	416 MAPBGA	125 MHz

For current information about PXD20 family products and documentation, please visit freescale.com/PXD20 and freescale.com/Tower

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