# PX5

**Renesas Ready Ecosystem Partner Solution**

# PX5 NET
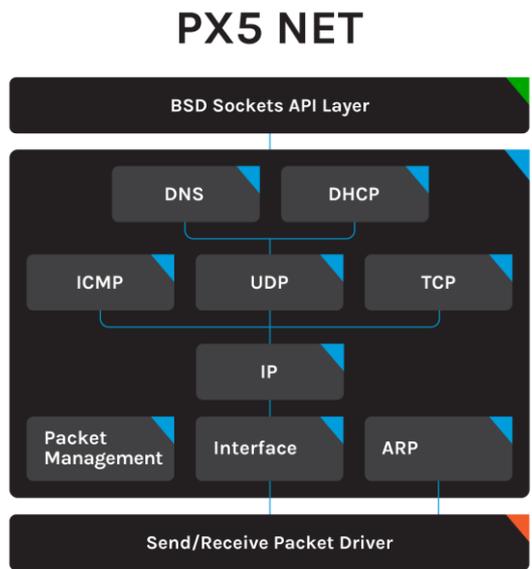

RENESAS PARTNER NETWORK READY

## Solution Summary

PX5 NET is an ultrasmall dual IPv4 and IPv6 TCP/IP networking stack featuring a native implementation of the BSD Sockets API. PX5 NET also provides high performance – achieving near-wire-speed throughput using minimal processing cycles, and is ideal for the most demanding real-time networking needs for embedded systems. As for safety and security, it offers optional run-time buffer overflow detection and packet structure, function pointer, socket, and stack verification. PX5 NET is available today for the full range of RA Family MCUs, RX Family of MCUs and RZ Family of MPUs. The example code can be downloaded from here free of charge.

## Features/Benefits

- IPv4 and IPv6 support
- Ultrasmall (Less than 6KB Flash and 2KB RAM for minimal use)
- Ultra-high performance (near wire speed)
- Implementation of the industry standard BSD Sockets API
- Run-time buffer overflow detection for enhanced safety and security (optional)
- Dynamic verification of data packet integrity, function pointers, sockets, and stacks (optional)
- Royalty-free

## Diagrams/Graphics



## Target Markets and Applications

- Automotive
- Industrial IoT
- Smart cities
- Smart homes
- Smart sensors
- Consumer electronics

https://px5rtos.com/px5-net/

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**Enhance \ Simplify \ Unite**
# EMBEDDED IoT DEVELOPMENT
Advanced PX5 RTOS uniting embedded industry with standard POSIX pthreads API

| Industrial Grade Embedded TCP/IP Networking |
|---|

### Native BSD Sockets API and real-time extensions

Protects firmware development investment by making firmware portable

Enables code sharing with embedded Linux Reduces developer training via industry-standard API

### Best-of-class TCP/IP

Small footprint (minimal 6KB)
Fast execution (near wire speed, zero-copy APIs)
Run-time buffer overflow detection

Easy to install and use

## OUR MISSION

Our "why" at PX5 is to make embedded development easier and faster than ever before. Developers using the PX5 NET have fewer networking problems and can deliver better-quality products to market in record time.

## UNITING EMBEDDED

The PX5 RTOS features a native implementation of the industry-standard BSD Sockets API, which instantly enables a vast number of developers who are already fluent with BSD Sockets. In addition to the native BSD Sockets support, PX5 NET also offers real-time extensions such as zero-copy packet transmission.

## ADVANCED TECHNOLOGY

The PX5 NET also offers best-of-class size and performance and is designed for hard real-time environments. Its memory usage is minimal – taking as little as 6KB of FLASH and 2KB of RAM. Best of all, PX5 NET memory usage automatically scales based on what the developer uses. No more dead code or complicated configuration options that might result in wasted memory.

As for safety and security, the PX5 NET provides run-time buffer overflow detection. It also leverages Pointer/Data Verification (PDV) technology to verify function pointers, sockets, and thread stacks. This technology is unique to PX5 NET.

## SIMPLE TO USE

PX5 NET is simple to use. It consists of a small number of C source files, so adding it to any application build environment is easy. It is also fully integrated with PX5 RTOS and all the most popular development tools.

## DOWNLOAD TO EVALUATE

Check out the free PX5 NET evaluation demonstrations to see for yourself what the PX5 NET can do for you. Please download and try one today here!

## CONTACT

PX5 Real-Time Operating System (RTOS) Support (px5rtos.com)