SDKPac™ XZIP
Software Development Kit

Cypherbridge®
Trusted, safe and secure

The SDKPac XZIP SDK provides portable GZIP compatible data compression for embedded systems. Interoperable with desktop GZIP, it interfaces to data sources including ANSI C stdio POSIX or embedded FAT file systems on removable and fixed flash media, using a flexible stream-oriented interface that can be adapted for custom data channels. Data can be streamed in real-time through the XZIP source and sink data callbacks. XZIP makes it easy to integrate data compression and decompression in edge devices.

OVERVIEW

Data is the feedstock of edge devices. Industry practice is shifting data processing from central hubs to edge devices. A diverse range of data transfer protocols are employed to move data from source to destination, transferring between edge devices and OT systems, including HTTPS, SMTP and IMAP email MIME attachments, SFTP and SCP, MQTT and other RFC and de-facto industry standards with highly scaled services.

Data transfer channels include wired networks, WiFi, and LTE cellular telemetry. LEO satellite services including the Starlink internet constellation provide ubiquitous data services across the globe. Data services include tradeoffs in terms of bandwidth, data charges and QoS.

Data at rest on an edge device uses storage resources on flash media, RAM and file systems. These data files are often generated from sensor sources and saved in ASCII and UTF-8 CSV or other formats that are storage sub-optimal. Time series data may be archived on the edge device which amplifies resource limitations.

XZIP FEATURES AND APPLICATIONS

- Standard GZIP format interoperable with desktop and server
- Stream oriented data source and sink interfaces
- Data transfer optimization reducing on channel time, connection overhead, data plan utilization, service improvement and lower OPEX.
- Download OTA software updates in compressed form and deploy on device using XUNZIP
- Data Storage optimization reducing data storage usage on edge and on cloud
- Data asset protection with encrypted storage
- Loadable AI models can be stored on device or downloaded OTA for adaptive deployment for machine learning, computer vision and language processing applications
- Portable ANSI-C SDK for a broad range of processors, platforms and file systems
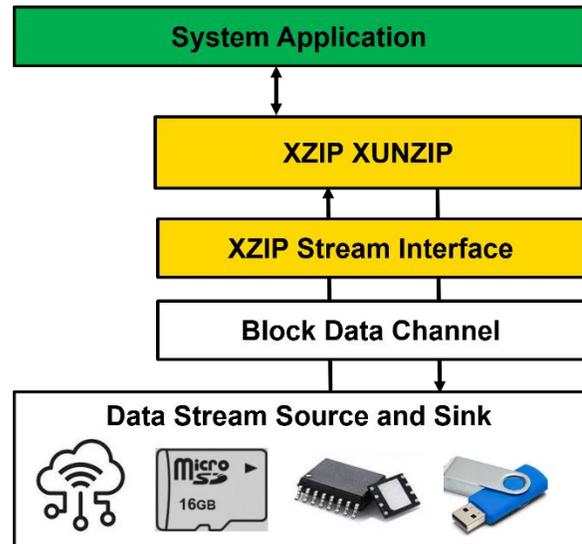
SDKPac SECURE

Cybersecurity principles include electronic data privacy, integrity, trust and availability. Together with data-in-flight protected by secure communications protocols, data-at-rest protection helps defend against physical access, remote reconnaissance, breach and lateral movement.

XZIP provides high security file-based encryption to safeguard data for applications including industrial control, medical device, and protected content assets.

The Cypherbridge SDKPac product family includes a wide range of secure SDKs including TLS, SSH, SFTP, and VPN, offering a complete single source for data-at-rest and data-in-flight solutions.

PLATFORM KIT

The SDKPac Library platform kit implements platform, OS and file system porting interfaces. XZIP is delivered pre-built and tested on a standard target platform. Platform support includes POSIX file systems, Eclipse ThreadX FileX, FATFS, with support for GCC, GHS MULTI and IAR EWARM toolchains.