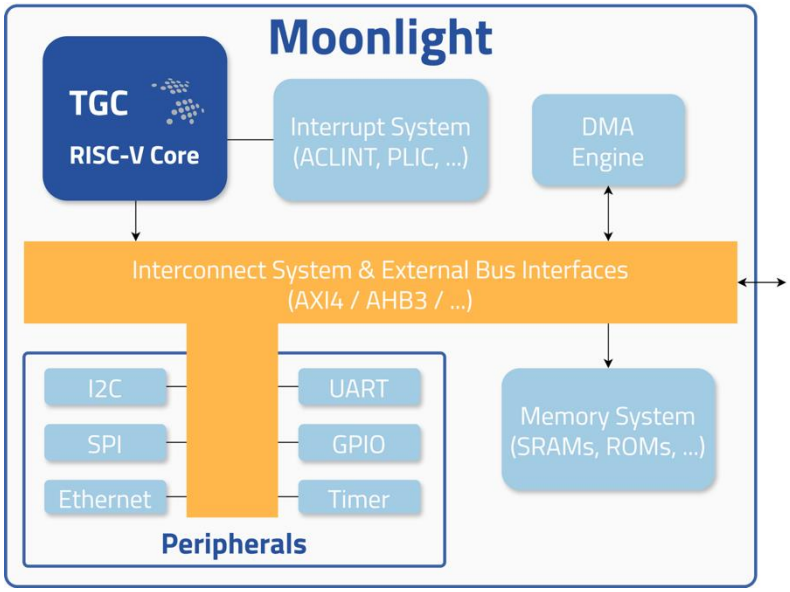
Moonlight

Configurable RISC-V Subsystem



Overview

Moonlight is a configurable RISC-V subsystem generator built around the TGC processor family. It integrates processor cores, memory, interconnect, interrupt handling, DMA, and peripherals into a reusable subsystem.

Configurability & Extensibility

You can adapt Moonlight to your needs, this includes:

- **Peripheral Composition**
  GPIO, UART, Timer, I2S, (Q)SPI, Ethernet, I2C, I3C, USB
- **TGC RISC-V core**
  Performance Class, Linux support, Safety features
  Optional ISA extension with custom instructions
  Multiple processor cores also possible
- **Interconnect System & External Bus Interfaces**
  Topology (e.g., split between high-/low-throughput)
  Bus protocol: AXI4, AHB3, AXI4-Lite, APB, OBI, OCP
  Provides external connection to rest of system (optional)
- **Further Components**
  Interrupt System (ACLINT, PLIC, CLIC, Custom)
  Memory System (RAMs, ROMs, external)
  DMA Engine (number of channels, transfer size, ...)
- **Custom IP**
  Moonlight can be extended with custom IP for peripherals or other components

Features & Benefits

- **Configurable & Flexible**
  Tailor the subsystem to your specific needs and requirements.
- **Jumpstart Development**
  Moonlight is a verified, proven foundation helps you get to a working system faster and easier.
- **Customizable Processor**
  The TGC family of RISC-V cores covers a wide range, from microcontroller to application-class.
  TGC also supports ISA extensions.
- **Extensibility**
  Moonlight can be extended as required.
  For example by adding your custom peripheral or interrupt controller.
- **Diverse Use Cases**
  From usage as embedded SoC to a house-keeping system in a bigger chip, its adaptability allows Moonlight to be used in various scenarios.
- **Virtual Prototype & HAL**
  Moonlight comes with a C-HAL (Hardware Abstraction Layer).
  There also is a Virtual Prototype (VP) of Moonlight, including all peripherals and components.

Get in touch to find out how MINRES Moonlight can help you