MoonGen is a scriptable high-speed packet generator built on an Intel’s Data Plane Development Kit (DPDK) as backend offering a wide range of features:

- **Speed:** ≥ 10 Gbit/s with minimal sized packets using a single CPU core
- **Flexibility:** Configuration & packet crafting in user-controlled Lua scripts
- **Efficiency:** Code optimization to generate fast scripts using LuaJIT
- **Precision:** Sub-µsec delay measurements on Intel 10 Gbit NICs
- **Parallelization:** Multi-core support for rates beyond 10 Gbit/s

**Latency Measurement Feature**
- MoonGen reuses hardware features originally designed for the Precision Time Protocol (PTP)
- Timestamping happens in hardware shortly before/after sending/receiving
- Precision of ± 3.2 ns on Intel X540 10 Gbit NICs
- Limitations: Packets must look like PTP packets: only UDP and PTP layer 2 packets are supported

**Latency Measurement Example**
![Latency Distribution](https://github.com/emmericp/MoonGen)

**Latency Measurement Demo**
- Cable length determination through time-of-flight
- Demo setup uses an unaltered Intel X540 dual port NIC

**More Information**
Additional information and source code of MoonGen is available at:

[https://github.com/emmericp/MoonGen](https://github.com/emmericp/MoonGen)