and predictable latency increases power consumption. Constant Latency mode is selected by triggering the task CONSTLAT.

In Low-power mode, the automatic power management system described in System ON mode ensures that the most efficient supply option is chosen to save power. The lowest possible power consumption comes at a cost of a varying CPU wakeup latency and PPI task response. Low-power mode is selected by triggering the task LOWPWR.

When the system enters System ON mode, it is in the sub-power mode Low-power by default.

# 5.2 System OFF mode

System OFF is the deepest power-saving mode the system can enter. In this mode, the system's core functionality is powered down and most ongoing tasks are stopped.

Register SYSTEMOFF on page 99 sets the device into System OFF mode. The following wakeup sources will initiate a wakeup from System OFF:

- The DETECT signal generated by the GPIO peripheral
- The ANADETECT signal generated by the LPCOMP peripheral
- The SENSE signal generated by the NFCT peripheral to wake-on-field
- The SYSCOUNTER compare event generated by the GRTC peripheral
- A debug session is started
- A pin reset

When the device wakes up from System OFF, a system reset is performed. For more details, see Reset behavior on page 103.

One or more RAM sections can be retained in System OFF depending on the RAM retention settings configured in MEMCONF — Memory configuration on page 44.

Before entering System OFF mode, the following conditions must be met.

- All on-going EasyDMA transactions must finish. See peripheral specific chapters for more information about how to get the status of EasyDMA transactions.
- The 32 MHz oscillator (HFXO) must be stopped. Stop HFXO with the XOSTOP task. The 32 kHz oscillator (LFXO) can be running.
- The register RESET.RESETREAS must be cleared. Failure to do so can make the system immediately wake up from System OFF mode.

## 5.2.1 Emulated System OFF mode

When the device is in Debug Interface mode, System OFF is emulated to ensure that all resources required for debugging are available during System OFF.

Resources required for debugging include the following key components:

- Debug Interface mode on page 820
- CLOCK — Clock control on page 70
- POWER — Power control on page 92
- OSCILLATORS — Oscillator control on page 86
- REGULATORS — Regulator control on page 97
- RESET — Reset control on page 101
- CPU
- Memory, including RAM and RRAM

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