**NVM Module Description Document**

**1.Introduction**

NVM (Nonvolatile Memory) is a type of non-volatile storage used to store data that needs to be retained even when the system is in standby mode. NVM is essentially an SRAM with a size of 180 bytes. However, it is located within the LP (Low-Power Power Domain) module. As long as the LP (Low-Power Power Domain) module remains powered, the data in NVM will not be lost. In other words, the data in NVM remains valid unless the power supply is disconnected.

**2.The Use of NVM**

NVM is mainly used to store data that is retained even in standby mode. For instance, when the system is playing information about a certain song and the PowerDown button is pressed (see the PowerKey section), the system enters the PowerDown mode. In this mode, information about the currently playing song, such as which song is being played, the playing time, and the current playing volume, can all be saved in the NVM. When the next user turns on the system (wakes it up), You can quickly resume playing the song from the previous breakpoint.

**2.1. NVM Read and Write**

In the program, reading and writing NVM content cannot be performed directly through memory access, but requires a special driver. The read/write interface is:

BOOL NvmRead(BYTE NvmAddr, BYTE\* Buf, BYTE Length)；

BOOL NvmWrite(BYTE NvmAddr, BYTE\* Buf, BYTE Length)；

**2.2. Using NVM in SDK**

In the AP80 series application development kit (SDK), the NVM space has already been used.

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| --- | --- | --- |
| NVM address | Size (bytes) | Explanation |
| 0~17 | 176 | 1. SDK application usage  It is mainly used for system breakpoint memory, system operation mode, Radio band, and RTC alarm clock. |
| 176 | 4 | 1. The SDK sends an upgrade request to BOOT  2. The status information passed to the SDK after Boot startup or upgrade |

If users modify the SDK, they can also customize the use of bytes 0 to 175 of the NVM. However, the four bytes starting from byte 176 are related to BOOT and have a fixed purpose, so they cannot be used for other purposes.

For detailed instructions on the use of NVM(0~175) in the SDK, please refer to "O18\_BackupRegisters.xls".