

Persistent Data Manager(Backup Manager)

Product System should keep data value before system shutdown because the user can use it in the same state.

Example of steps to keep data : case of Music Volume

Step 1. User change volume to step 16, this value is stored.

Step 2. System shutdown

Step 3. System boot-up

Step 4. System should play music with Volume:16.

System should be able to select the data write timing (e.g, immediately, writing when system shutdown).

Use Case #1 : “immediately”

step1. user change some data value

step2. System should write this value as persistent data

Use Case #2 : “(When) System shutdown”

step1. user change some data value.

But system will not write this value as persistent data

step2. When system shutdown process, system will write this value as persistent data

However, we can't write all persistent data “immediately” because immediately writing might damage storage life-span.

So, we would like to provide the feature of management features with controllable read/write timing.

API List

Backup_DataRd	: Read data from backup area
Backup_DataWt	: Write data from backup area
Backup_DataFil	: Fill data to backup area
Backup_DataSz	: Get data size of backup area
Backup_DataChk	: Check backup area data's validity
Backup_DataDel	: Delete of backup data

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Use-case #2 : “(When) System shutdown”

At system shutdown, the system saves the system state and values. When the power is turned on again, the data storage process is interrupted and the system startup process is executed. In the startup process, the interrupted data storage process is executed.

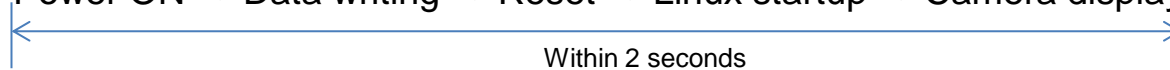
Therefore, the system startup process must be executed within a few seconds including data writing.

Example : **K.T. Safety Act**<https://www.marklines.com/en/report_all/rep1290_201405>

As a display time requirement for the rear camera image, system should display within 2 seconds after the shift is R.

Power down ⇒ shutdown process ⇒ data writing ⇒ ...

⇒ Power ON ⇒ Data writing ⇒ Reset ⇒ Linux startup ⇒ Camera display



To make writing unnecessary after interruption ...

- (1) Write sequentially ⇒ Large damage to storage
- (2) Give up ⇒ But NG for cars

Approach to solve

- (1) Multiplexing of nonvolatile RAM disk and Flash storage disk

Write sequentially to the non-volatile RAM. Then, read and write the updated information from the non-volatile RAM disk to the Flash storage.

In storage writing, there is no guarantee of completion within that time