

What are Samsung PIT Files?

PIT files contain the Partition Information Table (PIT) for Samsung Android phones. Different firmware versions may require different partition layouts so the necessary PIT file 'tells' Odin how to set up the phone partitions correctly for the specified firmware to be installed.

The PIT file contains all the relevant information for each required partition such as Partition Name, Flash File Name, Block Size, Block Count etc. and also contains some unknown properties that maybe identifiers or flags of some sort.

General Android Partition Description (Qualcomm MSM8960)

The function and content of many of the partitions are not very well described, nor easily found in one place. Here are some further details, that apply primarily to *Qualcomm Snapdragon S4/+* based Android devices. However, Windows Phones using these these SoC's should have a very similar partition structures, but with different names.

For details about: **RPM (PBL)**, **SBL1**, **SBL2**, **SBL3**, **TZ** and **ABOOT (APPSBL)**, please see this and this thread, where they are extensively discussed and described.

GPT: See section on PIT and GPT "partitions" below.

BACKUP: This partition should contain a copy of MODEMST2. Whether it does or not, is described in the PARAM partition.

BOOT: This is the partition that enables the phone to boot, as the name suggests. It includes the kernel and the ramdisk. Without this partition, the device will simply not be able to boot. Wiping this partition from recovery should only be done if absolutely required and once done, the device must NOT be rebooted before installing a new one, which can be done by installing a ROM that includes a */boot* partition.

CACHE: Contain the firmware update package which is downloaded from server, and the recovery log file. Other uses include storage for frequently accessed data and application components. Wiping the cache doesn't effect your personal data but simply gets rid of the existing data there, which gets automatically rebuilt as you continue using the device.

DATA / USERDATA: This partition contains the user's data – this is where your

contacts, messages, settings and apps that you have installed go. Wiping this partition essentially performs a factory reset on your device, restoring it to the way it was when you first booted it, or the way it was after the last official or custom ROM installation. When you perform a wipe data/factory reset from recovery, it is this partition that you are wiping.

EFS: The Android *EFS* partition stores all your phones important, but accessible, hardware data, such as WiFi/BlueTooth MAC's, IMEI (or ESN for a CDMA based device) and some others.

FOTA: Is the Firmware Over The Air partition. After the update package has been downloaded from the server it is saved into the *CACHE* partition. After that the userspace application that does the download writes a special cookie into the *FOTA* partition. This cookie tells the bootloaders to take the necessary steps to boot into recovery mode

FSG: Probably stands for File System (FS) "Golden". According to Samsung documentation, this partition is a "Golden Copy". This is partially confirmed by RE of the *PARAM* partition, which indicate that this partition should contain a copy of *MODEMST1*.

GROW: << unknown >>

MISC: This partition contains miscellaneous system settings in form of on/off switches. These settings may include *CID* (Carrier or Region ID), USB configuration and certain hardware settings etc. This is an important partition and if it is corrupt or missing, several of the device's features will will not function normally. Not all devices have this partition.

PARAM: This is the Parameter partition which contains a number of parameters, variables and settings of the hardware. Apparently it has an 88 byte header structure that tell us if the *MODEMST1* and *MODEMST2* have been backed up to the *FSG* and *BACKUP* partitions, respectively. Furthermore it contain all the debug settings (*DLOW/DMID/DHIG* etc), the "triangle" status of whether or not you have flashed custom ROMs and the flash count (**0x3FFE00**). Current boot mode in use, and much more. The info about this partition could easily occupy a book by itself.

PERSIST: << unknown >> The use of this partition is unknown and apparently only exists on Qualcomm based devices.

PIT: See below.

RECOVERY: Holds the recovery boot image. When updating the system we boot into recovery mode by using the boot image stored in this partition. It lets you boot the device into a recovery console for performing advanced recovery

and maintenance operations on it.

SSD: "Secure Software Download" is a memory based file system (*RAMFS*) for secure storage, used to download and store "who knows what" on the eMMC. It is a referenced part in the *Remote Storage RPC Client* of the MSM kernel.

SYSTEM: This partition basically contains the entire operating system, other than the kernel and the ramdisk. This includes the Android user interface as well as all the system applications that come pre-installed on the device. Wiping this partition will remove Android from the device without rendering it unbootable, and you will still be able to put the phone into recovery or bootloader mode to install a new ROM.

Partition Information Table (PIT) for Samsung Android phones

partition name	Order	dev	Type	first sector number(HEX)	first sector number	number of sectors	size(MB)
GPT					0	34	
MODEM		mmcblk0p1		00002000	8,192	122,880	
SBL1		mmcblk0p2		00020000	131,072	256	
SBL2		mmcblk0p3		00020100	131,328	512	
SBL3		mmcblk0p4		00020300	131,840	1,024	
ABOOT		mmcblk0p5		00020700	132,864	4,096	
RPM		mmcblk0p6		00021700	136,960	1,024	
BOOT		mmcblk0p7		00021B00	137,984	20,480	
TZ		mmcblk0p8		00026B00	158,464	1,024	
PIT		mmcblk0p9		00026F00	159,488	1,024	
PARAM		mmcblk0p10		00027300	160,512	20,480	
EFS		mmcblk0p11		0002C300	180,992	27,904	
MODEMST1		mmcblk0p12		00033000	208,896	6,144	
MODEMST2		mmcblk0p13		00034800	215,040	6,144	
SYSTEM		mmcblk0p14		00036000	221,184	3,072,000	15
USERDATA		mmcblk0p15		00324000	3,293,184	55,959,552	273
PERSIST		mmcblk0p16		03882000	59,252,736	16,384	
CACHE		mmcblk0p17		03886000	59,269,120	1,720,320	8
RECOVERY		mmcblk0p18		03A2A000	60,989,440	20,480	
FOTA		mmcblk0p19		03A2F000	61,009,920	20,480	
BACKUP		mmcblk0p20		03A34000	61,030,400	12,288	
FSG		mmcblk0p21		03A37000	61,042,688	6,144	
SSD		mmcblk0p22		03A38800	61,048,832	16	
GROW		mmcblk0p23		03A38810	61,048,848	5	

Total 61,071,360 sectors
Sector Size 512 bytes
Total Size 31,268,536,320 bytes
29.1 GB

Samsung PIT files download
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