# Efuse

## Efuse blocks

ESP32 has 4 eFuse blocks each containing 256 bits (not all bits can be used for user parameters):

1. EFUSE_BLK0 is used entirely for system purposes
2. EFUSE_BLK1 is used for Flash Encryption keys. If the Flash Encryption feature is not used, this block can be used for user parameters.
3. EFUSE_BLK2 is used for the Secure Boot key. If the Secure Boot feature is not used, this block can be used for user parameters.
4. EFUSE_BLK3 can be partially reserved to store a custom MAC address, or can be used entirely for user parameters. Note that some bits are already used in ESP-IDF.

The content of various blocks could be found at:

```
esp-idf/components/efuse/esp32??/esp_efuse_table.csv
```

## espefuse.py commands

```
espefuse.py --h
espefuse.py --chip esp32 adc_info
espefuse.py --chip esp32 summary
espefuse.py --chip esp32 dump
```

## idf.py commands

```
Idf.py provides a subset of the espefuse.py efuse manager
idf.py efuse-common-table           Generate C-source for IDF's eFuse
fields.
idf.py efuse-custom-table           Generate C-source for user's eFuse
fields.
idf.py show-efuse-table             Print eFuse table.
```

## Links

- https://docs.espressif.com/projects/esp-idf/en/stable/esp32/api-reference/system/efuse.html
- https://www.espressif.com/sites/default/files/documentation/esp32_technical_reference_manual_en.pdf#efuse

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