FCMkIV Profile Data Specification

Attribute — Default value

- **Core**
  - Name ... `"Unnamed FC Profile"`
  - Description ... *empty string*
- **Runtime**
  - Platform ... `UNKNOWN` *(given at runtime)*
  - Print Queue ... *mp.Queue (given at runtime)*
- **Network**
  - Broadcast port ... `65000`
  - Broadcast period (ms) ... `1000`
  - Broadcast period (s) ... *get from ms*
  - Communication period (ms) ... `100`
  - Communication period (s) ... *get from ms*
  - Max. message length (characters) ... `512`
  - Max. timeouts ... `10`
  - Main queue size ... `10`
  - Slave queue size ... `10`
  - Broadcast queue size ... `2`
  - Listener queue size ... `3`
  - MISO queue size ... `2`
  - Printer queue size ... `3`
  - Passcode ... `"CT"`
  - Default slave values (tuple) ...
    - Name ... `"FAWT Module"`
    - MAC ... *Given by slave*
    - Index ... *assigned automatically*
    - Fan model ... `"Unknown"`
    - Fan mode ... `SINGLE`
    - Target relation (tuple) ... `(1.0, 0.0)`
    - Chaser tolerance (decimal for %) ... `0.02`
    - Fan frequency (For PWM, in Hz) ... `25000`
    - Counter counts ... `2`
    - Counter timeout (ms) ... `30`
    - Pulses per rotation ... `2`
    - Max. RPM's (tuple, see fan mode) ... `(16000)`
    - Min. RPM's (tuple, see fan mode) ... `(1200)`
    - Min. DC's (tuple, see fan mode) ... `(0.5)`
    - Max. fans ... `21`
    - Max. fan timeouts ... `1`
    - Pinout (name as str) ... *CAST pinout*
  - Saved slaves (tuple tuple; see def. SV) ... *empty tuple*
  - Pinouts (str (name) to str (code) dict.) ... *built in*
- **Fan Array**
  - Default module rows ... `0`
  - Default module columns ... `0`
  - Default fan assignment ... *empty tuple*
  - Fan arrays (tuple) ... *empty tuple*
    - Name ... `"Unnamed fan array"`
    - Description ... *empty string*
    - Rows ... `0`
    - Columns ... `0`
    - Layers (fan mode) ... *Def. fan mode*
    - Modules (tuple tuple) ... *empty tuple*
      - Slave index ... `-1`
      - Row in array ... `-1`
      - Column in array ... `-1`
      - Number of rows ... `0`
      - Number of columns ... `0`
      - Number of fans ... `0`
      - Fan assignment (tuple tuple) ... *empty tuple*

Notes

- Profile data will be kept in memory as a Python dictionary, and distributed using deep copies.
- In MkIV revisions that use the MkIII Communicator, the relevant parameters must be adjusted to be compatible with the MkIII Archiver.
- Fan assignments are represented as tuples of tuples, where each inner tuple represents, as integers (fan indices) the fans that correspond to a particular grid cell. Grid cells may be empty (use an empty tuple), and the length of inner tuples must be consistent with the "fan mode" — that is, they must be at most singletons for single fans and at most pairs for double fans. For example, the following is the fan assignment that corresponds to a module from the CAST wind tunnel:

```
((0, 1), (2, 3), (4, 5), (6, 7), (8, 9), (10, 11), (12, 13), (14, 15), (16, 17))
```