

Support for multiple PWM fans

Feature Name: Support for multiple PWM fans

Feature Name in Annotation: PWM

Source of Information

Releaselog, pull requests, commits

Strategy Used:

Feature is identified from the latest release log first. The release log also provides the pull request and commits linked to the feature (see the links and tables below).

Feature Release Version: 1.1.0 – RC4

Time took to Identify and Locate the feature: 0.5 hour

Time took to Understand the Implementation: 1 hour

Feature Description:

This feature implement support for multiple fans within the 1.1.x codebase as a jumping-off point. This gives low-level support so commands like M106 P1 S100 and M107 P1 can control multiple fans.

Feature Information and Statistics:

PR No.	Merged Time	PR	Commits	Files	Line Added	Line deleted
#3086	19 Mar 2016	Support for multiple PWM fans	3	11	326	89

Ratios of sources (%)

RL	PR	CM	Ifdef	DK	CC	SC	GD
50	30	20	0	0	0	0	0

RL: Release Log; **PR:** Pull Request; **CM:** Commit, **Ifdef:** Ifdef Expression; **DK:** Domain Knowledge; **CC:** Code Comment; **SC:** Source Code; **GD:** G-Code Documentation.

Pull Request Links:

<https://github.com/MarlinFirmware/Marlin/pull/3086/files>

Feature Characteristics:

Feature Name	LoFC	NoFL	TD	Completely Wrapped by ifdef
Support for multiple PWM fans	356	30	1	No

Feature's Relevant Historical Data:

Request(issue) proposed

Time: 3 Mar 2016, by: bmarl

M106 P1 - Support for Fan 1 missing: <https://github.com/MarlinFirmware/Marlin/issues/3075>

Related discussion:

Error: M109 is waiting for cooling:

<https://github.com/MarlinFirmware/Marlin/issues/2767> (9 Nov 2015)

Comment:

```
3590 - if (code_seen('P') && pin_status >= 0 && pin_status <= 255)
3591 -   pin_number = code_value_short();
3596 + int pin_number = code_seen('P') ? code_value_short() : LED_PIN;
3597 + if (pin_number < 0) return;
3592 3598
3593 - for (uint8_t i = 0; i < COUNT(sensitive_pins); i++) {
3594 -   if (sensitive_pins[i] == pin_number) {
3595 -     pin_number = -1;
3596 -     break;
3597 -   }
3598 - }
3599 + for (uint8_t i = 0; i < COUNT(sensitive_pins); i++)
3600 +   if (pin_number == sensitive_pins[i]) return;
3601 +
3602 + pinMode(pin_number, OUTPUT);
3603 + digitalWrite(pin_number, pin_status);
3604 + analogWrite(pin_number, pin_status);
```

```

444 -     static millis_t fan_kick_end = 0;
445 -     if (tail_fan_speed) {
446 -         millis_t ms = millis();
447 -         if (fan_kick_end == 0) {
448 -             fan_kick_end = ms + FAN_KICKSTART_TIME;
449 -             tail_fan_speed = 255; // Starting up.
466 +
467 +     static millis_t fan_kick_end[FAN_COUNT] = { 0 }, ms = millis();
468 +
469 +     #define KICKSTART_FAN(f) \
470 +         if (tail_fan_speed[f]) { \
471 +             if (fan_kick_end[f] == 0) { \
472 +                 fan_kick_end[f] = ms + FAN_KICKSTART_TIME; \
473 +                 tail_fan_speed[f] = 255; \
474 +             } \
475 +             else if (fan_kick_end[f] > ms) \
476 +                 tail_fan_speed[f] = 255; \
477 +             else \
478 +                 fan_kick_end[f] = 0; \

```

Those codes have been modified to adapt multiple fans.