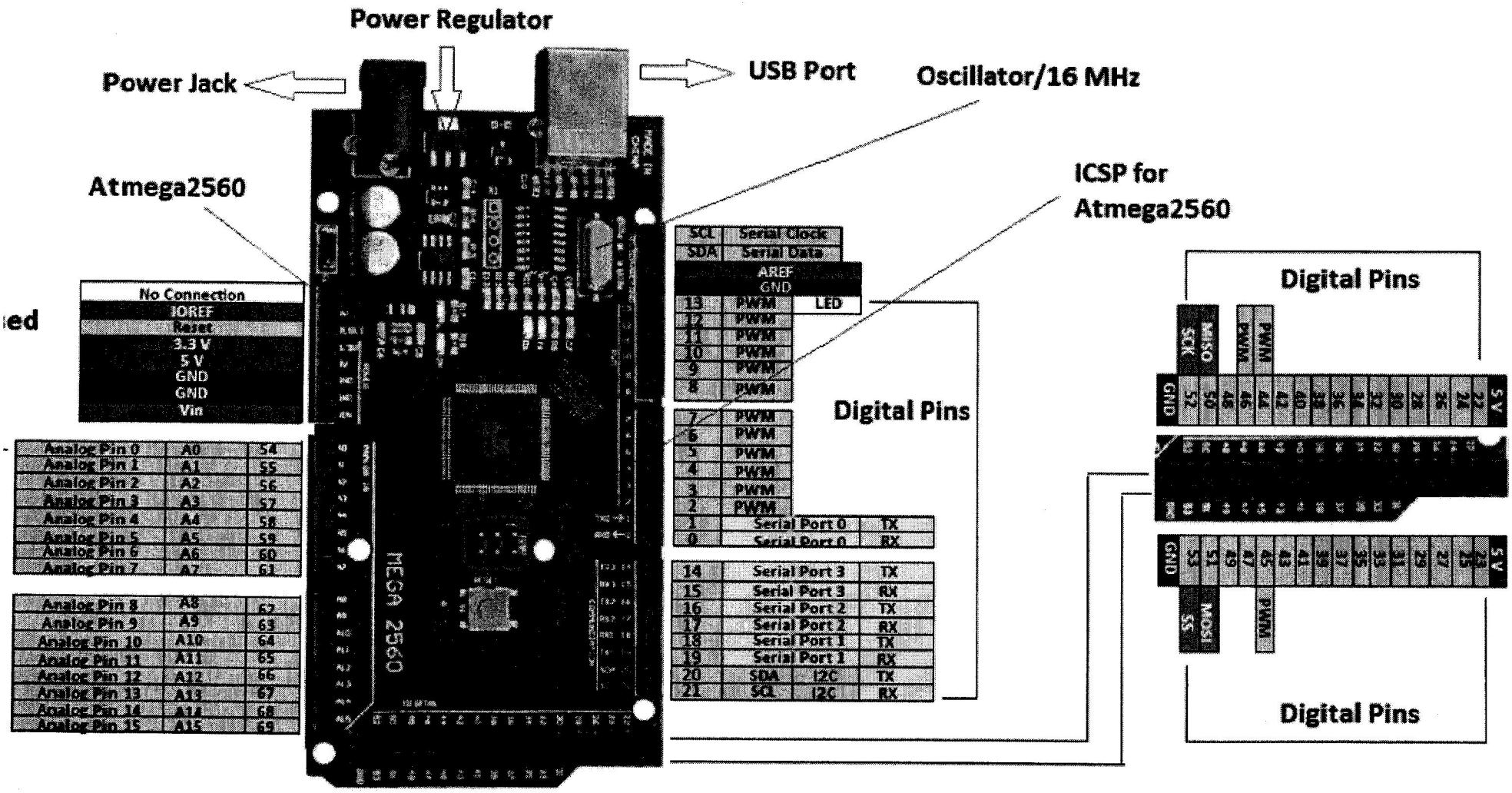


Arduino Mega 2560 Pinout

```
void setup() {
  // put your setup code here, to run once:
  // This is the code for triple turnout control
  // using digital pins 24-53 (30 total pins)
  // Each triple turnout will take 10 pins

  // Rock Island Rear turnout
  // Inputs pins 24, 25 are active low, default high
  // Output pins 26, 27 are active high for tortoise relay board
  // Output pins 28-33 are set in an alternating High/low pattern to drive
bi-color LED's

  // Rock Island Front turnout
  // Inputs pins 34, 35 are active low, default high
  // Output pins 36, 37 are active high for tortoise relay board
  // Output pins 38-43 are set in an alternating High/low pattern to drive
bi-color LED's

  // San Bernardino Service Lead turnout
  // Inputs pins 44, 45 are active low, default high
  // Output pins 46, 47 are active high for tortoise relay board
  // Output pins 48-53 are set in an alternating High/low pattern to drive
bi-color LED's

  // define 6 inputs
  //Rock Island Rear triple turnout
  pinMode (24, INPUT_PULLUP); //Triple 1 - SW Closed Right - sw1up
  pinMode (25, INPUT_PULLUP); //Triple 1 - SW Closed Left - sw1down
  //Rock Island Front triple turnout
  pinMode (34, INPUT_PULLUP); //Triple 2 - SW Closed Right - sw2up
  pinMode (35, INPUT_PULLUP); //Triple 2 - SW Closed Left - sw2down
  //San Bernardino Service triple turnout
  pinMode (44, INPUT_PULLUP); //Triple 3 - SW Closed Right - sw3up
  pinMode (45, INPUT_PULLUP); //Triple 3 - SW Closed Left - sw3down


  //define 24 outputs
  //Rock Island Rear triple turnout
  pinMode (26, OUTPUT); //Triple 1 - Tortoise 1.1 Front - Relay board
  pinMode (27, OUTPUT); //Triple 1 - Tortoise 1.2 Rear - Relay board
  pinMode (28, OUTPUT); //Triple 1 - Right LED bi-color
  pinMode (29, OUTPUT); //Triple 1 - Right LED bi-color
  pinMode (30, OUTPUT); //Triple 1 - Center LED bi-color
  pinMode (31, OUTPUT); //Triple 1 - Center LED bi-color
  pinMode (32, OUTPUT); //Triple 1 - Left LED bi-color
```

```
 pinMode (33, OUTPUT); //Triple 1 - Left LED bi-color
//Rock Island Front triple turnout
 pinMode (36, OUTPUT); //Triple 2 - Tortoise 2.1 Front - Relay board
 pinMode (37, OUTPUT); //Triple 2 - Tortoise 2.2 Rear - Relay board
 pinMode (38, OUTPUT); //Triple 2 - Right LED bi-color
 pinMode (39, OUTPUT); //Triple 2 - Right LED bi-color
 pinMode (40, OUTPUT); //Triple 2 - Center LED bi-color
 pinMode (41, OUTPUT); //Triple 2 - Center LED bi-color
 pinMode (42, OUTPUT); //Triple 2 - Left LED bi-color
 pinMode (43, OUTPUT); //Triple 2 - Left LED bi-color
 //San Bernardino Service triple turnout
 pinMode (46, OUTPUT); //Triple 3 - Tortoise 3.1 Front - Relay board
 pinMode (47, OUTPUT); //Triple 3 - Tortoise 3.2 Rear - Relay board
 pinMode (48, OUTPUT); //Triple 3 - Right LED bi-color
 pinMode (49, OUTPUT); //Triple 3 - Right LED bi-color
 pinMode (50, OUTPUT); //Triple 3 - Center LED bi-color
 pinMode (51, OUTPUT); //Triple 3 - Center LED bi-color
 pinMode (52, OUTPUT); //Triple 3 - Left LED bi-color
 pinMode (53, OUTPUT); //Triple 3 - Left LED bi-color

 // move tortoise to 'c' and turn lights on Green
digitalWrite (26, LOW); //Tortoise 1.1c
 digitalWrite (27, LOW); //Tortoise 1.2c
digitalWrite (28, LOW); //LED bi-color On
digitalWrite (29, HIGH); //LED bi-color Off
digitalWrite (30, LOW); //LED bi-color On
digitalWrite (31, HIGH); //LED bi-color Off
digitalWrite (32, LOW); //LED bi-color On
digitalWrite (33, HIGH); //LED bi-color Off

digitalWrite (36, LOW); //Tortoise 2.1c
digitalWrite (37, LOW); //Tortoise 2.2c
digitalWrite (38, LOW); //LED bi-color On
digitalWrite (39, HIGH); //LED bi-color Off
digitalWrite (40, LOW); //LED bi-color On
digitalWrite (41, HIGH); //LED bi-color Off
digitalWrite (42, LOW); //LED bi-color On
digitalWrite (43, HIGH); //LED bi-color Off

digitalWrite (46, LOW); //Tortoise 3.1c
digitalWrite (47, LOW); //Tortoise 3.2c
digitalWrite (48, LOW); //LED bi-color On
digitalWrite (49, HIGH); //LED bi-color Off
digitalWrite (50, LOW); //LED bi-color On
digitalWrite (51, HIGH); //LED bi-color Off
```

```
  digitalWrite (52, LOW); //LED bi-color On
  digitalWrite (53, HIGH); //LED bi-color Off

  delay (5000); // Delay 5 second

  // move tortoise to 't' and turn Lights on Red

  digitalWrite (26, HIGH); //Tortoise 1.1t
  digitalWrite (27, HIGH); //Tortoise 1.2t
  digitalWrite (28, HIGH); //LED bi-color Off
  digitalWrite (29, LOW); //LED bi-color On
  digitalWrite (30, HIGH); //LED bi-color Off
  digitalWrite (31, LOW); //LED bi-color On
  digitalWrite (32, HIGH); //LED bi-color Off
  digitalWrite (33, LOW); //LED bi-color On

  digitalWrite (36, HIGH); //Tortoise 2.1t
  digitalWrite (37, HIGH); //Tortoise 2.2t
  digitalWrite (38, HIGH); //LED bi-color Off
  digitalWrite (39, LOW); //LED bi-color On
  digitalWrite (40, HIGH); //LED bi-color Off
  digitalWrite (41, LOW); //LED bi-color On
    gitalWrite (42, HIGH); //LED bi-color Off
  digitalWrite (43, LOW); //LED bi-color On

  digitalWrite (46, HIGH); //Tortoise 3.1t
  digitalWrite (47, HIGH); //Tortoise 3.2t
  digitalWrite (48, HIGH); //LED bi-color Off
  digitalWrite (49, LOW); //LED bi-color On
  digitalWrite (50, HIGH); //LED bi-color Off
  digitalWrite (51, LOW); //LED bi-color On
  digitalWrite (52, HIGH); //LED bi-color Off
  digitalWrite (53, LOW); //LED bi-color On

  delay (5000); // Delay 5 second

  }
//End Setup code

  void loop() {
//  ut your main code here to run repeatedly:

// Define toggle Switch variables
 int sw1up = HIGH;
 int sw1down = HIGH;
```

```
  int sw2up = HIGH;
  int sw2down = HIGH;
  int sw3up = HIGH;
  int sw3down = HIGH;

 // Begin Rock Island Rear
 // Right code

    sw1up=digitalRead (24); //Read Switch 1 being up
    if (sw1up == LOW) {
     digitalWrite (26, HIGH); //Tortoise 1.1t

     digitalWrite (28, LOW); //Right LED Green
     digitalWrite (29, HIGH); //Right LED Green

     digitalWrite (30, HIGH); //Center LED Red
     digitalWrite (31, LOW); //Center LED Red

     digitalWrite (32, HIGH); //Center LED Red
     digitalWrite (33, LOW); //Center LED Red
    }

 /  Left code

    sw1down=digitalRead (25); //Read Switch 1 being down
    if (sw1down == LOW) {
     digitalWrite (26, LOW); //Tortoise 1.1c
     digitalWrite (27, HIGH); //Tortoise 1.2t

     digitalWrite (28, HIGH); //Right LED Red
     digitalWrite (29, LOW); //Right LED Red

     digitalWrite (30, HIGH); //Center LED Red
     digitalWrite (31, LOW); //Center LED Red

     digitalWrite (32, LOW); //Left LED Green
     digitalWrite (33, HIGH); //Left LED Green

    }

 /  Center code

    sw1up=digitalRead (24); //Read Switch 1 being up
    sw1down=digitalRead (25); //Read Switch 1 being down
    if ((sw1up == HIGH) && (sw1down == HIGH)) {
```

```
    digitalWrite (26, LOW); //Tortoise 1.1c
    digitalWrite (27, LOW); //Tortoise 1.2c

    digitalWrite (28, HIGH); //Right LED Red
    digitalWrite (29, LOW); //Right LED Red

    digitalWrite (30, LOW); //Center LED Green
    digitalWrite (31, HIGH); //Center LED Green

    digitalWrite (32, HIGH); //Left LED Red
    digitalWrite (33, LOW); //Left LED Red

   }

// End Rock Island Rear
//-----------------------
// Begin Rock Island Front
// Right code

  sw1up=digitalRead (34); //Read Switch 1 being up
  if (sw1up == LOW) {
   digitalWrite (36, HIGH); //Tortoise 2.1t

    digitalWrite (38, LOW); //Right LED Green
    digitalWrite (39, HIGH); //Right LED Green

    digitalWrite (40, HIGH); //Center LED Red
    digitalWrite (41, LOW); //Center LED Red

    digitalWrite (42, HIGH); //Center LED Red
    digitalWrite (43, LOW); //Center LED Red
   }

// Left code

  sw1down=digitalRead (35); //Read Switch 1 being down
  if (sw1down == LOW) {
   digitalWrite (36, LOW); //Tortoise 2.1c
   digitalWrite (37, HIGH); //Tortoise 2.2t

   digitalWrite (38, HIGH); //Right LED Red
   digitalWrite (39, LOW); //Right LED Red

   digitalWrite (40, HIGH); //Center LED Red
   digitalWrite (41, LOW); //Center LED Red
```

```
    digitalWrite (42, LOW); //Left LED Green
    digitalWrite (43, HIGH); //Left LED Green

   }

// Center code

   sw1up=digitalRead (34); //Read Switch 1 being up
   sw1down=digitalRead (35); //Read Switch 1 being down
   if ((sw1up == HIGH) && (sw1down == HIGH)) {
    digitalWrite (36, LOW); //Tortoise 2.1c
    digitalWrite (37, LOW); //Tortoise 2.2c

    digitalWrite (38, HIGH); //Right LED Red
    digitalWrite (39, LOW); //Right LED Red

    digitalWrite (40, LOW); //Center LED Green
    digitalWrite (41, HIGH); //Center LED Green

    digitalWrite (42, HIGH); //Left LED Red
    digitalWrite (43, LOW); //Left LED Red

   }

// End Rock Island Front
//-----------------------
// Begin SB Service
// Right code

   sw1up=digitalRead (44); //Read Switch 1 being up
   if (sw1up == LOW) {
    digitalWrite (46, HIGH); //Tortoise 3.1t

    digitalWrite (48, LOW); //Right LED Green
    digitalWrite (49, HIGH); //Right LED Green

    digitalWrite (50, HIGH); //Center LED Red
    digitalWrite (51, LOW); //Center LED Red

    digitalWrite (52, HIGH); //Center LED Red
    digitalWrite (53, LOW); //Center LED Red
   }

// Left code
```

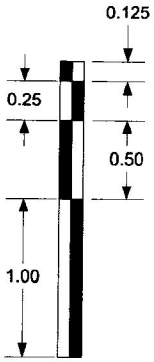
```
  sw1down=digitalRead (45); //Read Switch 1 being down
  if (sw1down == LOW) {
   digitalWrite (46, LOW); //Tortoise 3.1c
   digitalWrite (47, HIGH); //Tortoise 3.2t

   digitalWrite (48, HIGH); //Right LED Red
   digitalWrite (49, LOW); //Right LED Red

   digitalWrite (50, HIGH); //Center LED Red
   digitalWrite (51, LOW); //Center LED Red

   digitalWrite (52, LOW); //Left LED Green
   digitalWrite (53, HIGH); //Left LED Green

  }

// Center code

  sw1up=digitalRead (44); //Read Switch 1 being up
  sw1down=digitalRead (45); //Read Switch 1 being down
  if ((sw1up == HIGH) && (sw1down == HIGH)) {
   digitalWrite (46, LOW); //Tortoise 3.1c
   digitalWrite (47, LOW); //Tortoise 3.2c

   digitalWrite (48, HIGH); //Right LED Red
   digitalWrite (49, LOW); //Right LED Red

   digitalWrite (50, LOW); //Center LED Green
   digitalWrite (51, HIGH); //Center LED Green

   digitalWrite (52, HIGH); //Left LED Red
   digitalWrite (53, LOW); //Left LED Red

  }

// End SB Service

 }
```

Fast Tracks Tie Template
HO Scale No. 6 3-Way

Produced To NMRA Standards
Version 1.01

Printing Instructions

- Select the Print option in the Adobe toolbar.
- Be sure that all page scaling, fitting or cropping options in the Adobe print options box are turned off.
- Setup your printer to print in B&W or Greyscale with the highest possible quality setting.
- **Select 8.5 X 14 (Legal) paper.**
- Be sure that your printer is set to print full size with no page scaling, fitting or cropping.



Confirm that the template is printed at the correct size by measuring the above scale with a ruler or vernier caliper. If the size of the scale is not correct, then check your printing settings to be sure that all scaling and fitting functions have been turned off.

Shaded ties are PCB ties.

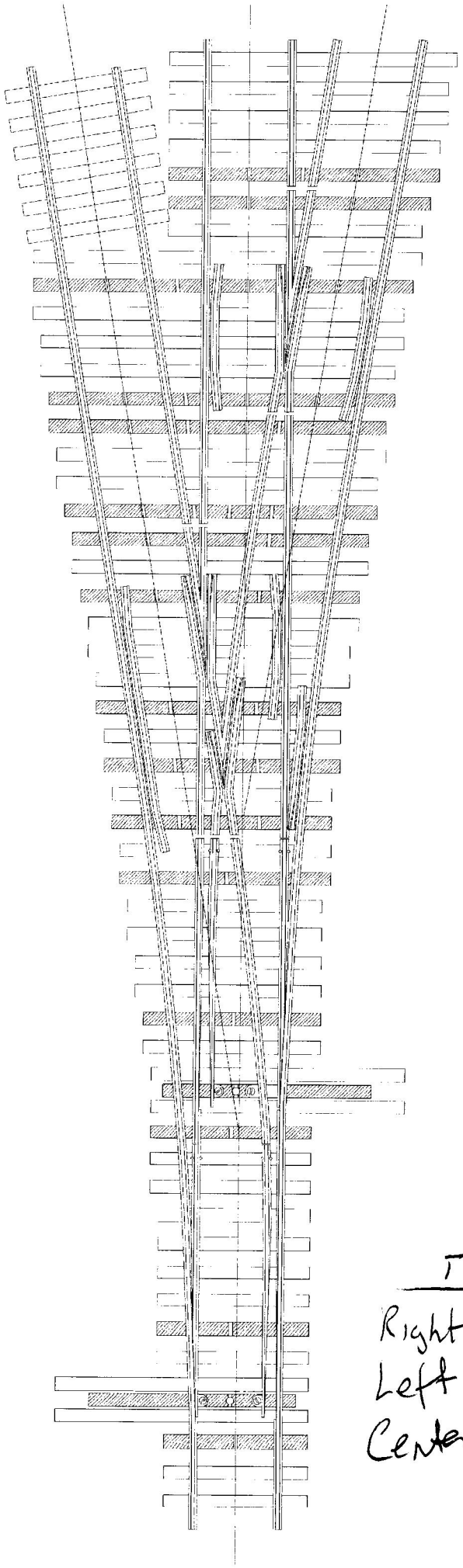
Important Notes

This template has been designed to aid in the placement of ties for your Fast Tracks built trackwork. The location of the rails is purely for aesthetic purposes and is not intended to imply the correct or accurate placement of rail.

This template is only intended to help you place your ties on your layout and should not be considered to be representative of the accuracy of our Fast Tracks assembly fixtures. All Fast Tracks fixtures are precision machined to your exact specifications and selected standard.

We are constantly reviewing and improving our templates. Always be sure that you are using the most recent version of this template by visiting our website.

For a complete selection of printable templates, visit us on the web at www.handlaidtrack.com



TT

Right - 1c - 2t
Left - 1t
Center - 1c - 2c