In [1]:

```
import cv2
import numpy as np
```

In [2]:

```
src = cv2.imread('./data/circuit.bmp', cv2.IMREAD_GRAYSCALE)
tmp = cv2.imread('./data/circuit_tmp.bmp', cv2.IMREAD_GRAYSCALE)
dst  = cv2.cvtColor(src, cv2.COLOR_GRAY2BGR)  # 출력 표시 영상

R1 = cv2.matchTemplate(src, tmp, cv2.TM_SQDIFF_NORMED)
minVal, _, minLoc, _ = cv2.minMaxLoc(R1)
print('TM_SQDIFF_NORMED:', minVal, minLoc)

w, h = tmp.shape[:2]
cv2.rectangle(dst, minLoc, (minLoc[0]+h, minLoc[1]+w), (255, 0, 0), 2)

cv2.imshow('dst',  dst)
cv2.waitKey()
cv2.destroyAllWindows()
```

```
TM_SQDIFF_NORMED: 0.0 (558, 323)
```

In [4]:

```
src = cv2.imread('./data/circuit_modified.bmp', cv2.IMREAD_GRAYSCALE)
tmp = cv2.imread('./data/circuit_tmp.bmp', cv2.IMREAD_GRAYSCALE)
dst  = cv2.cvtColor(src, cv2.COLOR_GRAY2BGR)  # 출력 표시 영상

#R1 = cv2.matchTemplate(src, tmp, cv2.TM_SQDIFF_NORMED)
#R1 = cv2.matchTemplate(src, tmp, cv2.TM_CCORR_NORMED)
R1 = cv2.matchTemplate(src, tmp, cv2.TM_CCOEFF_NORMED)

minVal, maxVal, minLoc, maxLoc = cv2.minMaxLoc(R1)

#print('TM_SQDIFF_NORMED:', minVal, minLoc)
#print('TM_CCORR_NORMED:', maxVal, maxLoc)
print('TM_CCOEFF_NORMED:', maxVal, maxLoc)

#y, x = minLoc[:2]
y, x = maxLoc[:2]
w, h = tmp.shape[:2]
cv2.rectangle(dst, (y, x), (y+h, x+w), (255, 0, 0), 2)

cv2.imshow('dst',  dst)
cv2.waitKey()
cv2.destroyAllWindows()
```

```
TM_CCOEFF_NORMED: 0.2853729724884033 (558, 323)
```

In [ ]: