

```
fn (%data, %kernel) {
  let %result = Conv(%data, %kernel)
  %result
}
```

Relay IR

```
produce Conv {
  for(ff, 0, batch_size) {
    for(nn, 0, out_channel) {
      for(yy, 0, height) {
        for(xx, 0, width) {
          Conv[(((ff*out_channel*height*width) + (nn*height*width))
+ (yy*width)) + xx]] = 0h
          for (ry, 0, kernel_h) {
            for (rx, 0, kernel_w) {
              for (rc, 0, in_channel) {
                Conv[(((ff*out_channel*height*width) +
(nn*height*width)) + (yy*width)) + xx]] =
(Conv[(((ff*out_channel*height*width) + (nn*height*width)) +
(yy*width)) + xx]] + (Data[((((ff*in_channel**height*width) + nn
* height*width + yy * width +
xx]*kernel[(((nn*in_channel*kernel_h*kernel_w) + (rc
*kernel_h*kernel_w)) + (ry*kernel_w)) + rx))])
              }
            }
          }
        }
      }
    }
  }
}
```

TVM IR (original)



```
produce Conv {
  for(i, 0, batch_size //block)
  for (o, 0, out_channel//block)
  for (h, 0, height)
  for (w, 0, width)
  for (kh, 0, kernel_h)
  for (kw, 0, kernel_w)
  for (ic, 0, in_channel//block)
  for (ii, 0, block)
  for (nn, 0, block)
  for (oo, 0, block)
    Conv[(((i*out_channel*height* width*block*block)+(o *
height* width*block*block)) + (h*width*block*block)) + (nn
*block)) + oo]] = (Conv[(((i*out_channel*height* width*block*block)+(o *
height* width*block*block)) + (h*width*block*block)) + (nn
*block)) + oo]] + (Data[((((i * in_channel * height*width*block)) + (ic*
height*width*block*block) + (h*width*block*block)) + (w*block_block)) +
(nn*block)) + ii])*kernel[((((o*in_channel * kernel_h*kernel_w*block) +
(ic*kernel_h*kernel_w*block*block)) + (kh*kernel_w*block*block)) +
(kw*block*block)) + (ii*block)) + oo]]))
}
```

Conv (. . .)

Cambricon-ACC

Tensor Core

`wmma::mma_sync (. . .)`



TVM IR (opt.)