

Calculation Variable Prinhead Resolution

Possible Resolutions

\$ if(pixel_{offset} * = integer)\$

In [94]:

```
import math
def calc_possible_dpi(interline_gaps, dpi_ph, ph_type):
    possible_dpi = [] # dpi
    for dpi_img in range(1,3000): # dpi
        dpi_possible = True
        for interlinegap in interlinegaps:
            mult_int = int(interlinegap*(dpi_img/dpi_ph))
            mult_double = interlinegap*(dpi_img/dpi_ph)
            if (mult_double - mult_int) > 0:
                dpi_possible = False
        if dpi_possible:
            possible_dpi.append(dpi_img)

    print("Possible Resolutions of {}".format(ph_type))
    print("dpi_img | dpi_img/dpi_ph")
    for dpi_img in possible_dpi:
        check_mod_2 = fmod((dpi_img/dpi_ph), ())
        if check_mod_2 == 0:
            print("{:7} | {:14} <--- Possible in FPGA".format(dpi_img,dpi_img/dpi_ph))
        else:
            print("{:7} | {:14}".format(dpi_img,dpi_img/dpi_ph))
```

KM1024i

In [95]:

```
interlinegaps = [12,28,40] # px
dpi_ph = 360.0 # dpi
calc_possible_dpi(interlinegaps, dpi_ph, "Konica Minolta KM1024i")
```

```
Possible Resolutions of Konica Minolta KM1024i
dpi_img | dpi_img/dpi_ph
  90 |      0.25 <--- Possible in FPGA
 180 |      0.5  <--- Possible in FPGA
 270 |      0.75 <--- Possible in FPGA
 360 |      1.0  <--- Possible in FPGA
 450 |      1.25 <--- Possible in FPGA
 540 |      1.5  <--- Possible in FPGA
 630 |      1.75 <--- Possible in FPGA
 720 |      2.0  <--- Possible in FPGA
 810 |      2.25 <--- Possible in FPGA
 900 |      2.5  <--- Possible in FPGA
 990 |      2.75 <--- Possible in FPGA
1080 |      3.0  <--- Possible in FPGA
1170 |      3.25 <--- Possible in FPGA
1260 |      3.5  <--- Possible in FPGA
1350 |      3.75 <--- Possible in FPGA
1440 |      4.0  <--- Possible in FPGA
1530 |      4.25 <--- Possible in FPGA
1620 |      4.5  <--- Possible in FPGA
1710 |      4.75 <--- Possible in FPGA
1800 |      5.0  <--- Possible in FPGA
1890 |      5.25 <--- Possible in FPGA
1980 |      5.5  <--- Possible in FPGA
2070 |      5.75 <--- Possible in FPGA
2160 |      6.0  <--- Possible in FPGA
2250 |      6.25 <--- Possible in FPGA
2340 |      6.5  <--- Possible in FPGA
2430 |      6.75 <--- Possible in FPGA
2520 |      7.0  <--- Possible in FPGA
2610 |      7.25 <--- Possible in FPGA
2700 |      7.5  <--- Possible in FPGA
2790 |      7.75 <--- Possible in FPGA
2880 |      8.0  <--- Possible in FPGA
2970 |      8.25 <--- Possible in FPGA
```

KM1024

In [96]:

```
interlinegaps = [20] # px
dpi_ph = 360.0 # dpi
calc_possible_dpi(interlinegaps, dpi_ph, "Konica Minolta KM1024")
```

Possible Resolutions of Konica Minolta KM1024

dpi_img	dpi_img/dpi_ph	
18	0.05	
36	0.1	
54	0.15	
72	0.2	
90	0.25	<--- Possible in FPGA
108	0.3	
126	0.35	
144	0.4	
162	0.45	
180	0.5	<--- Possible in FPGA
198	0.55	
216	0.6	
234	0.65	
252	0.7	
270	0.75	<--- Possible in FPGA
288	0.8	
306	0.85	
324	0.9	
342	0.95	
360	1.0	<--- Possible in FPGA
378	1.05	
396	1.1	
414	1.15	
432	1.2	
450	1.25	<--- Possible in FPGA
468	1.3	
486	1.35	
504	1.4	
522	1.45	
540	1.5	<--- Possible in FPGA
558	1.55	
576	1.6	
594	1.65	
612	1.7	
630	1.75	<--- Possible in FPGA
648	1.8	
666	1.85	
684	1.9	
702	1.95	
720	2.0	<--- Possible in FPGA
738	2.05	
756	2.1	
774	2.15	
792	2.2	
810	2.25	<--- Possible in FPGA
828	2.3	
846	2.35	
864	2.4	
882	2.45	
900	2.5	<--- Possible in FPGA
918	2.55	
936	2.6	
954	2.65	
972	2.7	
990	2.75	<--- Possible in FPGA
1008	2.8	
1026	2.85	
1044	2.9	
1062	2.95	
1080	3.0	<--- Possible in FPGA
1098	3.05	
1116	3.1	
1134	3.15	
1152	3.2	
1170	3.25	<--- Possible in FPGA
1188	3.3	
1206	3.35	
1224	3.4	
1242	3.45	
1260	3.5	<--- Possible in FPGA

1278		3.55	
1296		3.6	
1314		3.65	
1332		3.7	
1350		3.75	<--- Possible in FPGA
1368		3.8	
1386		3.85	
1404		3.9	
1422		3.95	
1440		4.0	<--- Possible in FPGA
1458		4.05	
1476		4.1	
1494		4.15	
1512		4.2	
1530		4.25	<--- Possible in FPGA
1548		4.3	
1566		4.35	
1584		4.4	
1602		4.45	
1620		4.5	<--- Possible in FPGA
1638		4.55	
1656		4.6	
1674		4.65	
1692		4.7	
1710		4.75	<--- Possible in FPGA
1728		4.8	
1746		4.85	
1764		4.9	
1782		4.95	
1800		5.0	<--- Possible in FPGA
1818		5.05	
1836		5.1	
1854		5.15	
1872		5.2	
1890		5.25	<--- Possible in FPGA
1908		5.3	
1926		5.35	
1944		5.4	
1962		5.45	
1980		5.5	<--- Possible in FPGA
1998		5.55	
2016		5.6	
2034		5.65	
2052		5.7	
2070		5.75	<--- Possible in FPGA
2088		5.8	
2106		5.85	
2124		5.9	
2142		5.95	
2160		6.0	<--- Possible in FPGA
2178		6.05	
2196		6.1	
2214		6.15	
2232		6.2	
2250		6.25	<--- Possible in FPGA
2268		6.3	
2286		6.35	
2304		6.4	
2322		6.45	
2340		6.5	<--- Possible in FPGA
2358		6.55	
2376		6.6	
2394		6.65	
2412		6.7	
2430		6.75	<--- Possible in FPGA
2448		6.8	
2466		6.85	
2484		6.9	
2502		6.95	
2520		7.0	<--- Possible in FPGA
2538		7.05	
2556		7.1	
2574		7.15	
2592		7.2	
2610		7.25	<--- Possible in FPGA
2628		7.3	
2646		7.35	
2664		7.4	
2682		7.45	
2700		7.5	<--- Possible in FPGA

2718		7.55	
2736		7.6	
2754		7.65	
2772		7.7	
2790		7.75	<--- Possible in FPGA
2808		7.8	
2826		7.85	
2844		7.9	
2862		7.95	
2880		8.0	<--- Possible in FPGA
2898		8.05	
2916		8.1	
2934		8.15	
2952		8.2	
2970		8.25	<--- Possible in FPGA
2988		8.3	

Ricoh Gen5

In [97]:

```
interlinegaps = [13,279,292] # px
dpi_ph = 600.0 # dpi
calc_possible_dpi(interlinegaps, dpi_ph, "Ricoh GEN5")
```

Possible Resolutions of Ricoh GEN5

dpi_img		dpi_img/dpi_ph	
600		1.0	<--- Possible in FPGA
1200		2.0	<--- Possible in FPGA
1800		3.0	<--- Possible in FPGA
2400		4.0	<--- Possible in FPGA

Kyocera KJ4B

In [98]:

```
interlinegaps = [0,20,70,80,90,100,150,160,170,180,220,230,240,250,260,300,310,320,330,380,390,400,410,460,480]
# px
dpi_ph = 600.0 # dpi
calc_possible_dpi(interlinegaps, dpi_ph, "Kyocera KJ4B")
```

Possible Resolutions of Kyocera KJ4B

dpi_img		dpi_img/dpi_ph	
60		0.1	
120		0.2	
180		0.3	
240		0.4	
300		0.5	<--- Possible in FPGA
360		0.6	
480		0.8	
540		0.9	
600		1.0	<--- Possible in FPGA
720		1.2	
780		1.3	
900		1.5	<--- Possible in FPGA
960		1.6	
1020		1.7	
1080		1.8	
1140		1.9	
1200		2.0	<--- Possible in FPGA
1260		2.1	
1440		2.4	
1500		2.5	<--- Possible in FPGA
1560		2.6	
1740		2.9	
1800		3.0	<--- Possible in FPGA
1860		3.1	
1920		3.2	
1980		3.3	
2040		3.4	
2100		3.5	<--- Possible in FPGA
2160		3.6	
2220		3.7	
2280		3.8	
2340		3.9	
2400		4.0	<--- Possible in FPGA
2520		4.2	

2580	4.3	
2700	4.5	<--- Possible in FPGA
2820	4.7	
2880	4.8	