Lead Frame

影像校正&影像切割

2021.02

影像處理流程

- 此次測試瑕疵共分三大類：OE有8個、UE有5個、FO有1個，共計14個缺陷樣本。
- 因部分缺陷是發生在背面，故需由背面取像才可檢出，如：OE-1。
- UE缺陷利用反面取像才能突顯瑕疵特徵，OE缺陷則大多是以正面取像呈現較佳效果。
- **正/反同軸落光兩個光學系統是互補的，若架設正/反兩套光學系統此次樣本之瑕疵成像率可達100%。**

蝕刻過度(OE)		
缺陷編號	正面取像	反面取像
OE-1	X	O
OE-2	O	X
OE-3	O	O
OE-4	O	X
OE-5.1	O	O
OE-5.2	O	X
OE-6	O	X
OE-7	O	O
檢出率	87.5%	50%

蝕刻不足(UE)		
缺陷編號	正面取像	反面取像
UE-1	X	O
UE-2	X	O
UE-3	X	O
UE-4	X	O
UE-5	X	O
檢出率	0%	100%

異物(FO)		
缺陷編號	正面取像	反面取像
FO-1	O	X
檢出率	100%	0%

O：可成像且可檢測
X：不可成像，無法檢出

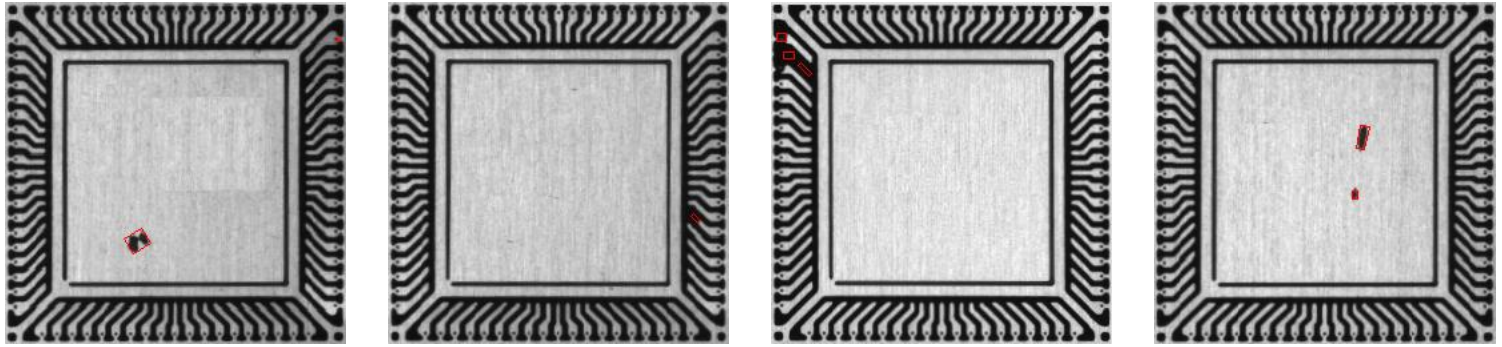
Lead Frame(正面)檢測結果

	判NG	判OK	Recall
様本NG	18(15)	10(4)	65% (79%)
様本OK	15	265	96%

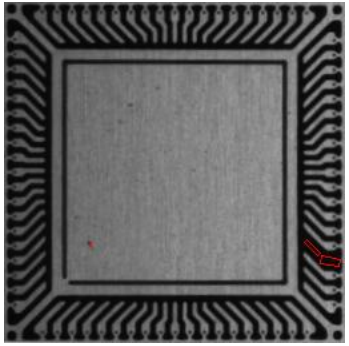
様本NG					
	判OK	判NG	Recall		AI Recall
FO 異物	2	1	67%	<	100%
OE 蝕刻過度	2	14	87.5%	=	87.5%
UE 蝕刻不足	6	3	33%		0%

NG被判NG

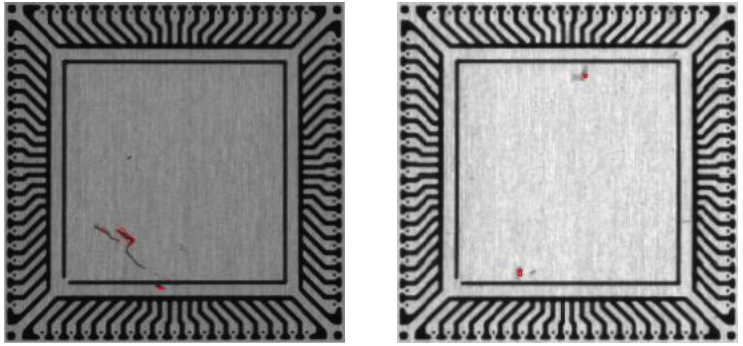
OE



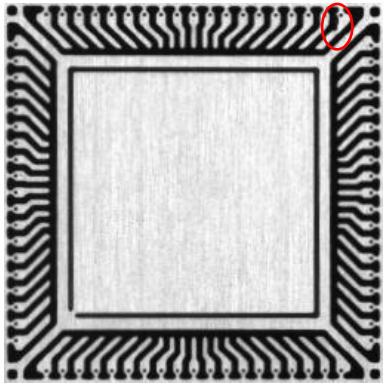
FO



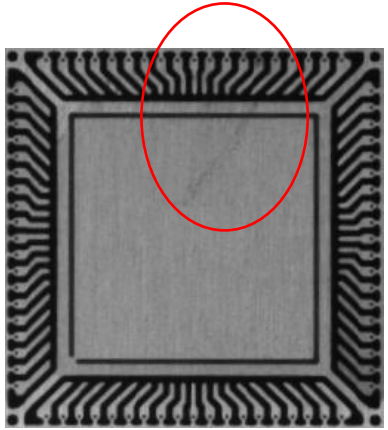
UE



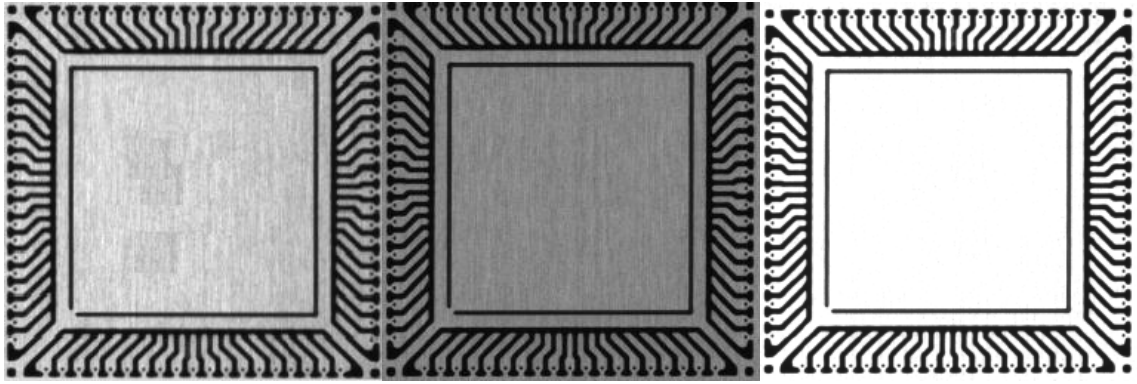
NG被誤判成OK



OE
蝕刻過度



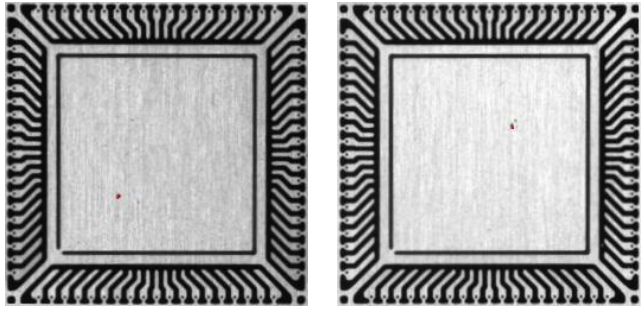
FO
異物



UE
蝕刻不足

OK被誤判成NG

雜點



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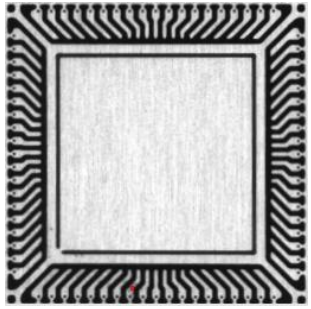
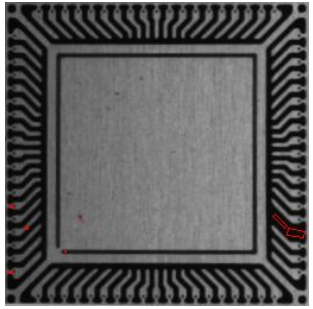
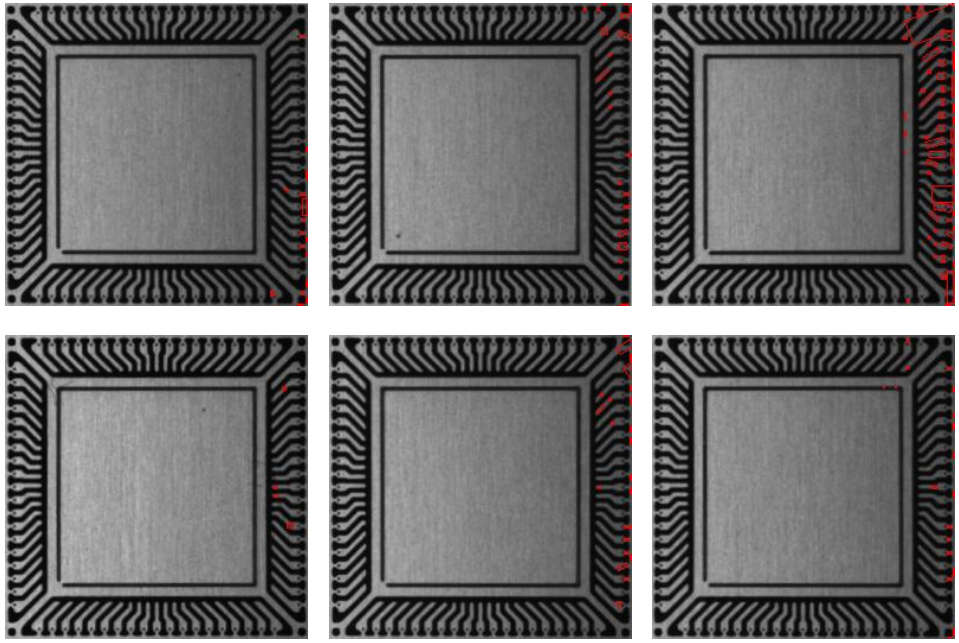


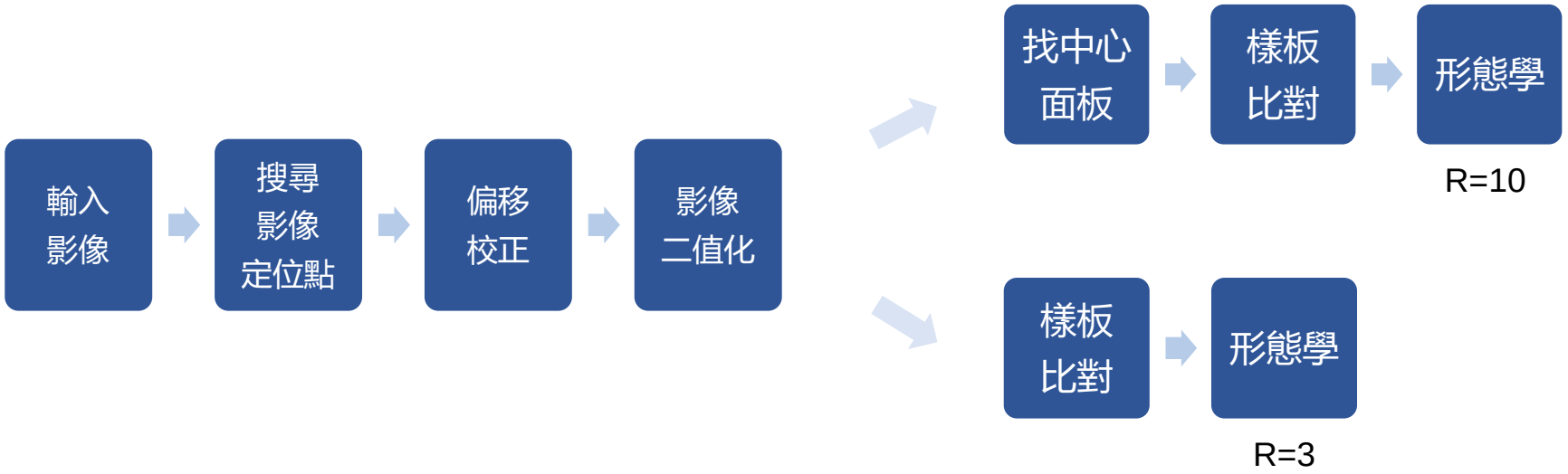
OE?



光線不均

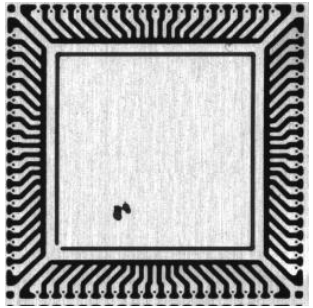


影像檢測流程

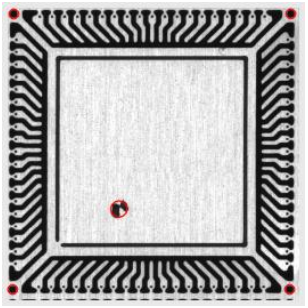


影像檢測流程

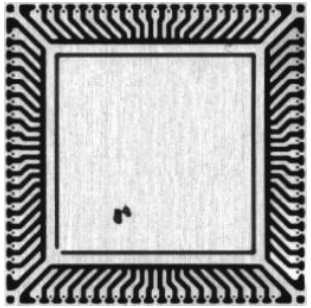
輸入影像



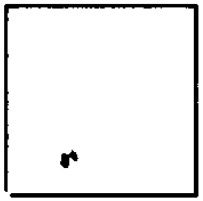
搜尋影像定位點



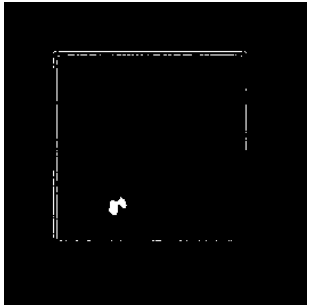
偏移校正



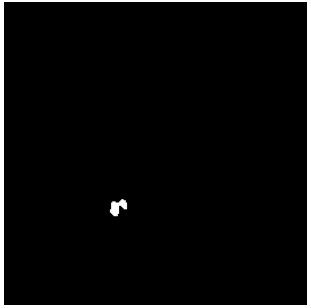
影像二值化



與OK樣板比對

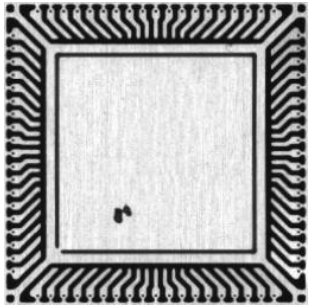


形態學

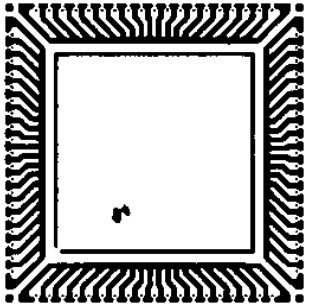


影像校正

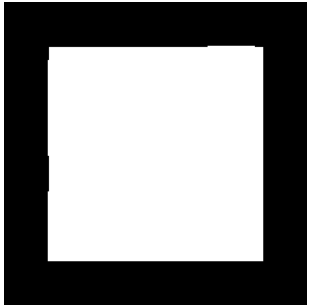
偏移校正



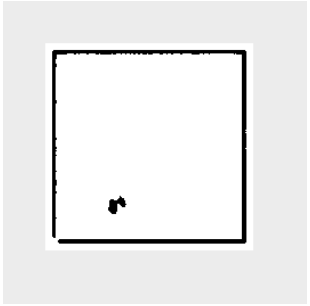
影像二值化



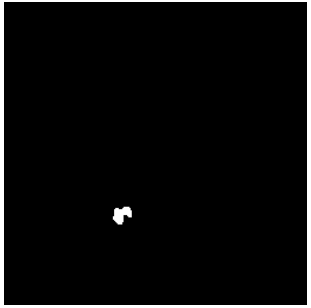
形態學



找中心面板



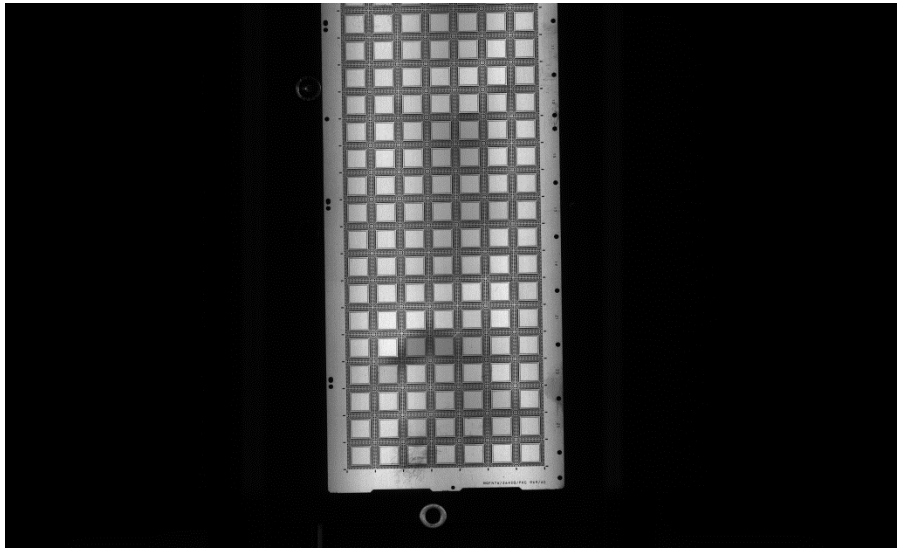
形態學



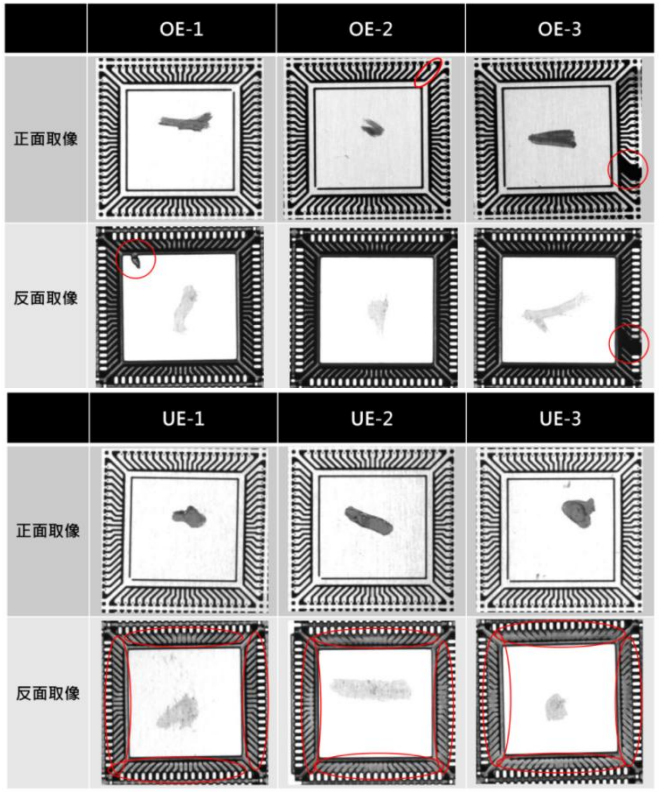
影像處理流程

拍攝影像 → 影像校正 → 影像切割 → AI分類

拍攝影像

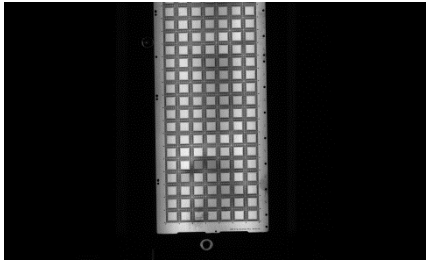


AI分類

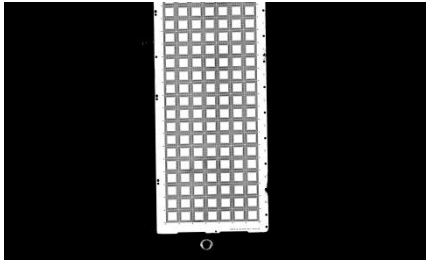


影像校正

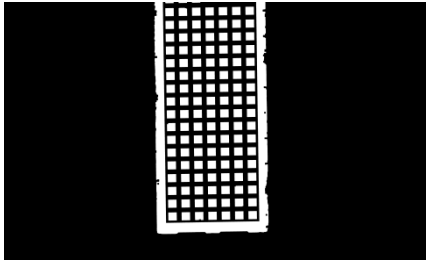
輸入影像



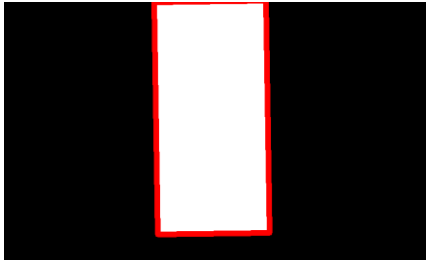
影像二質化



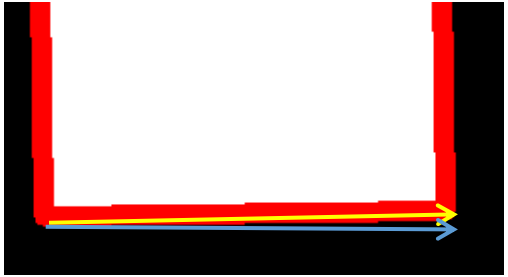
形態學



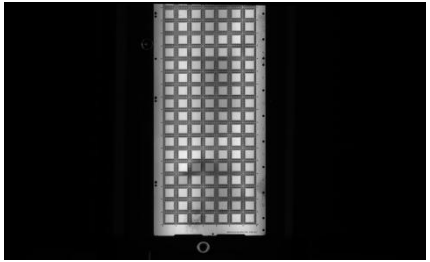
最小矩形



計算偏移角度

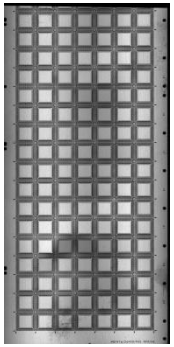


校正影像

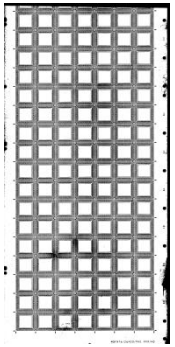


影像切割

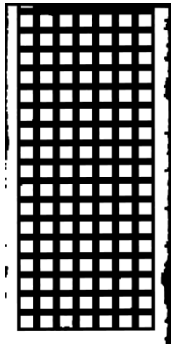
校正後影像



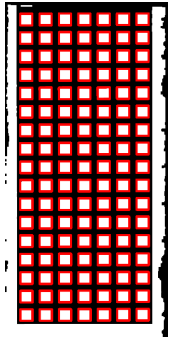
影像二質化



形態學



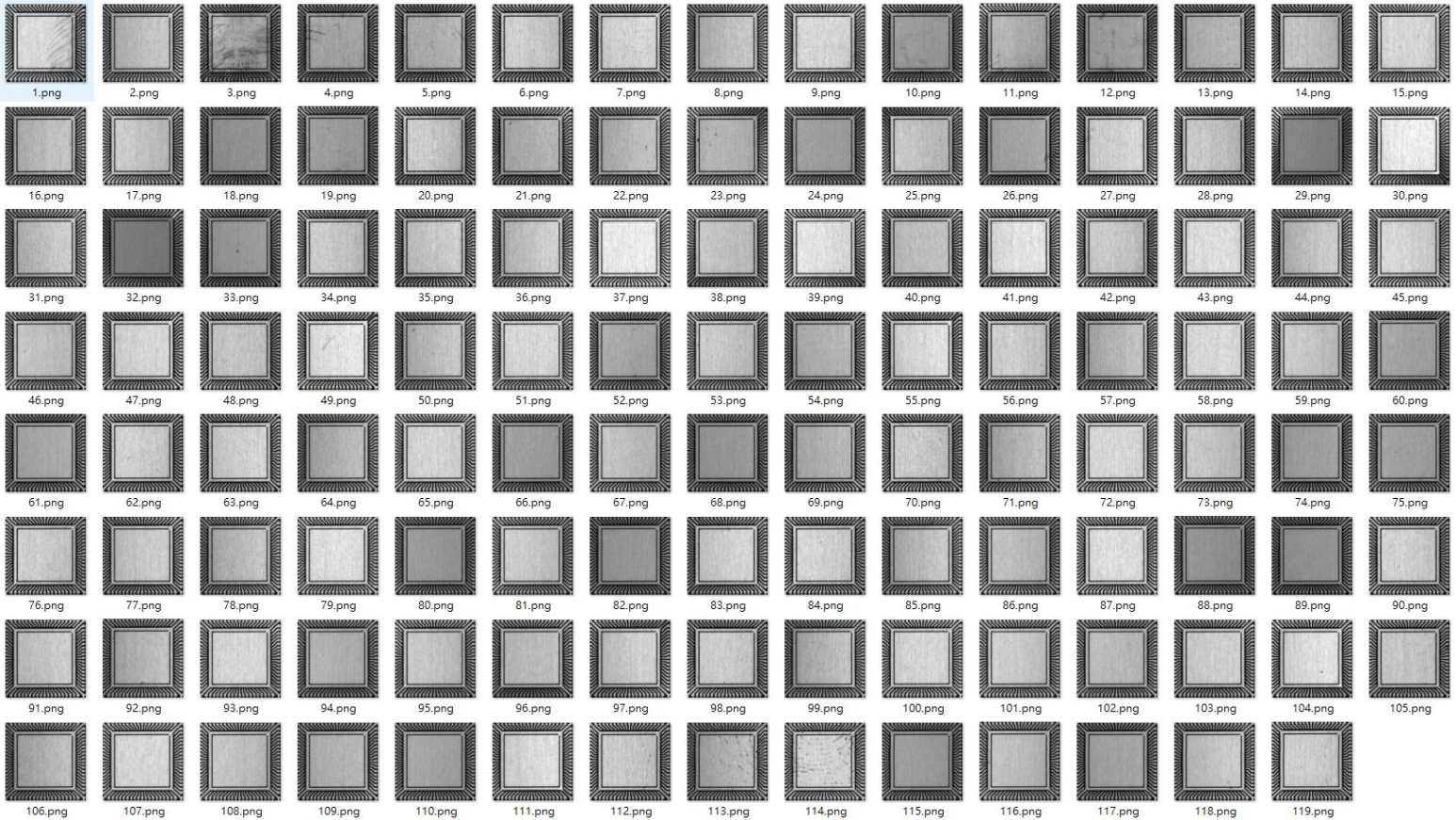
最小矩形



限制 w, h

影像切割

裁切後的影像(Lead Frame正面)



光線不均造成的影響