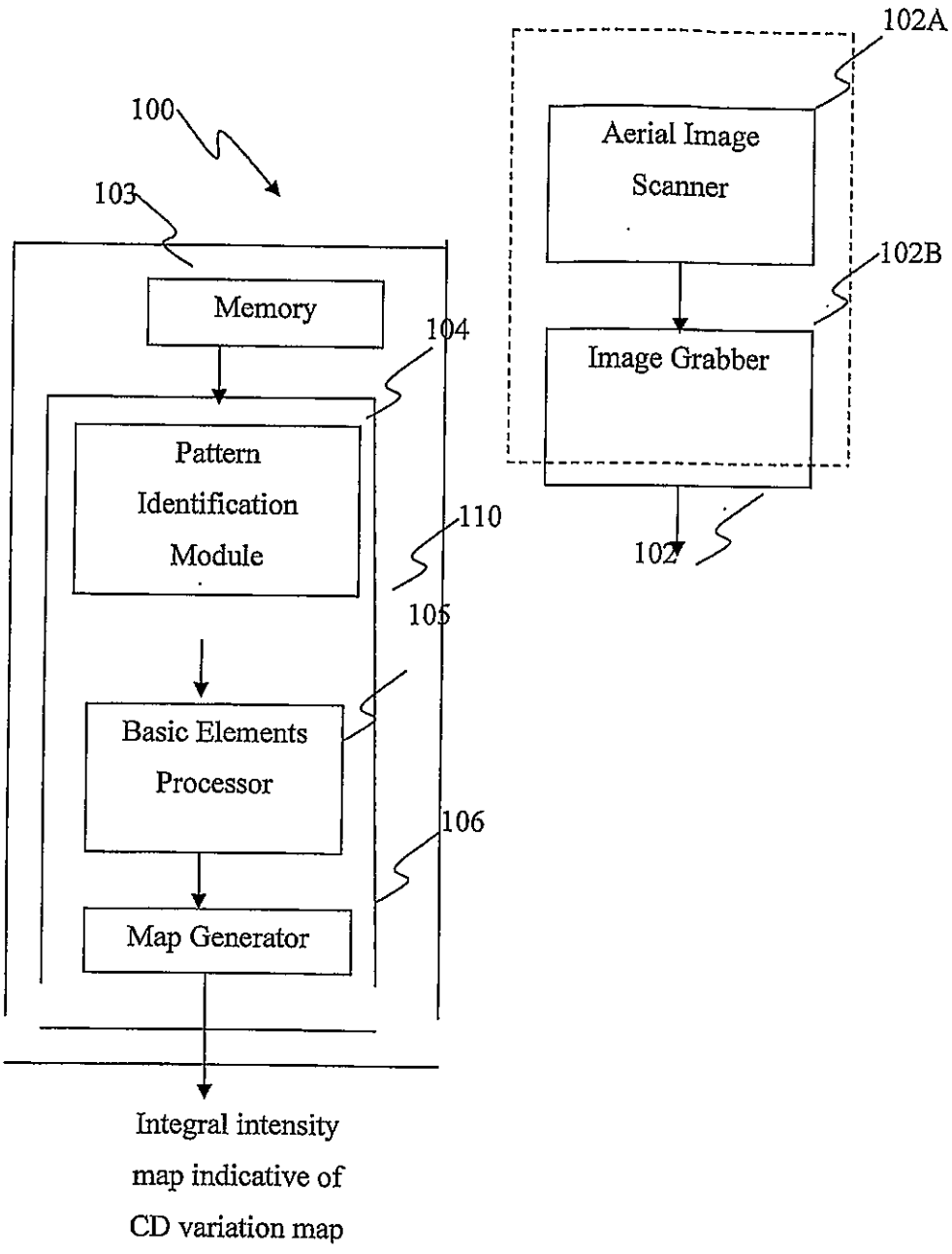
100
103
Memory
104
Pattern
Identification
Module
110
105
Basic Elements
Processor
106
Map Generator
Integral intensity
map indicative of
CD variation map
102A
Aerial Image
Scanner
102B
Image Grabber
102

Fig. 1

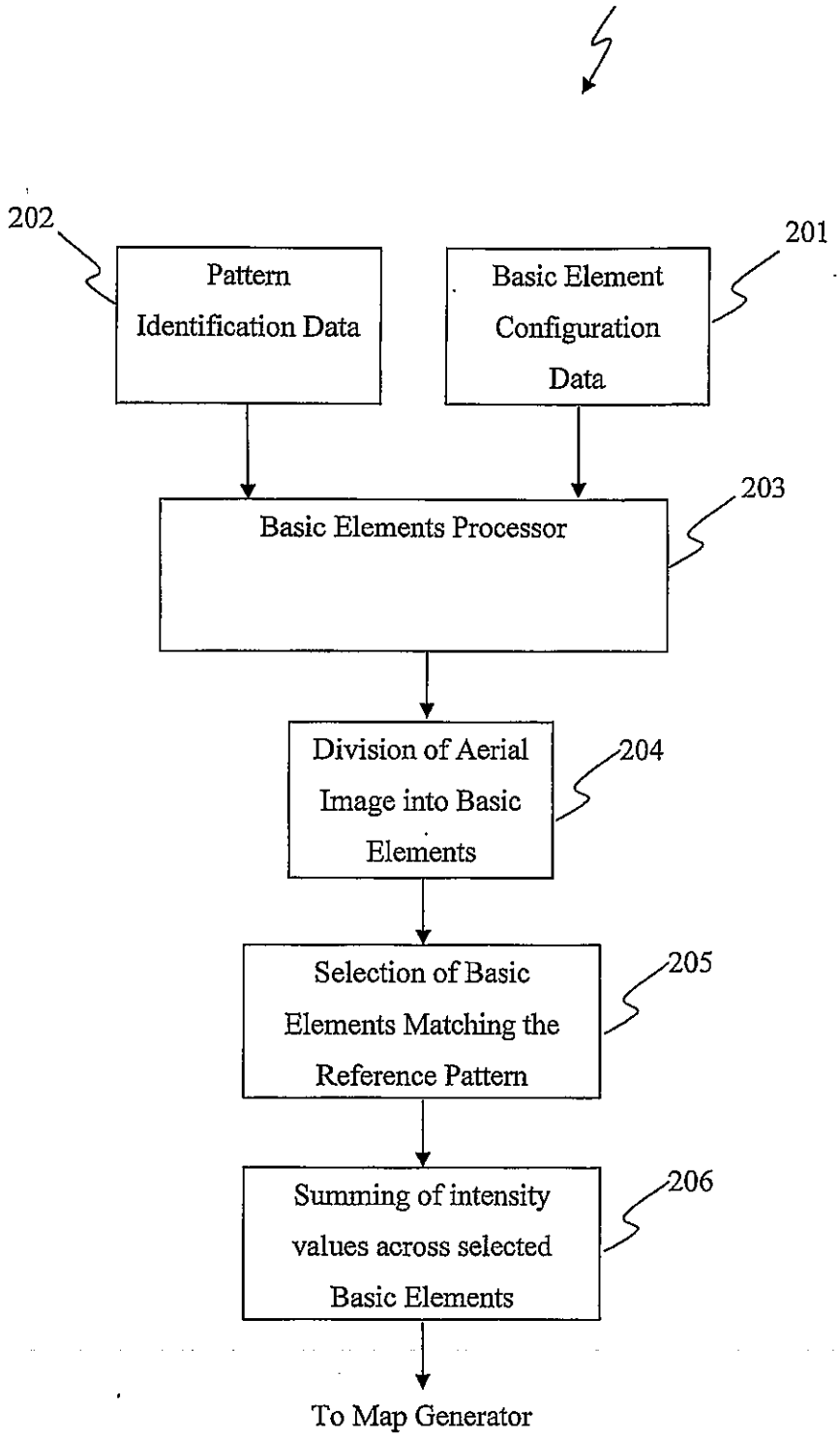
202
Pattern Identification Data
201
Basic Element Configuration Data
203
Basic Elements Processor
Division of Aerial Image into Basic Elements
204
Selection of Basic Elements Matching the Reference Pattern
205
Summing of intensity values across selected Basic Elements
206
To Map Generator

Fig. 2

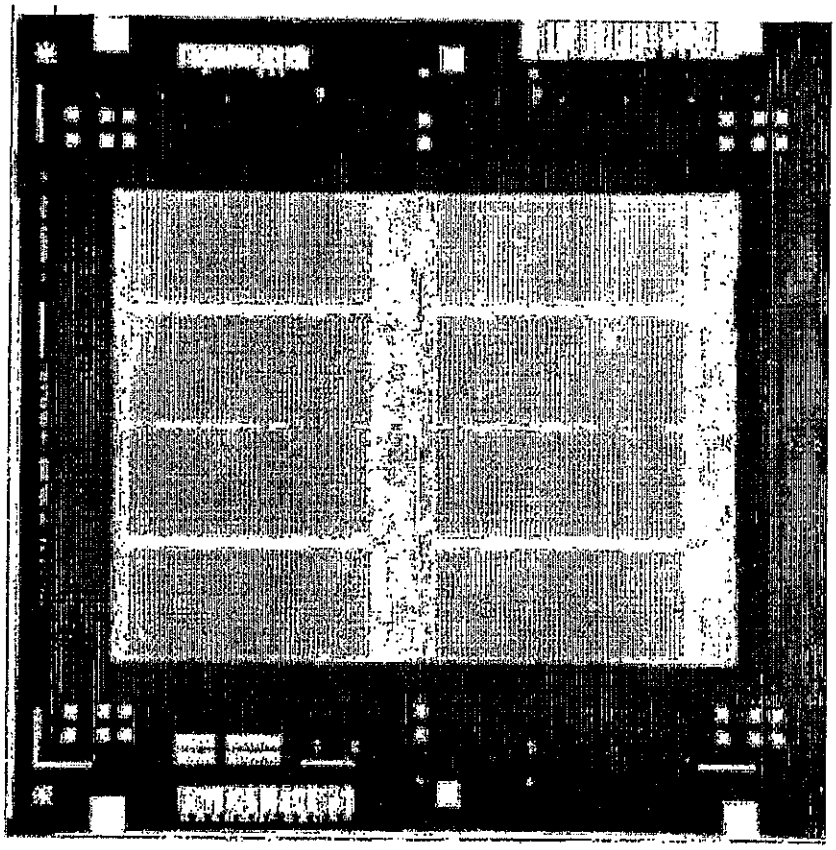

Fig. 3A

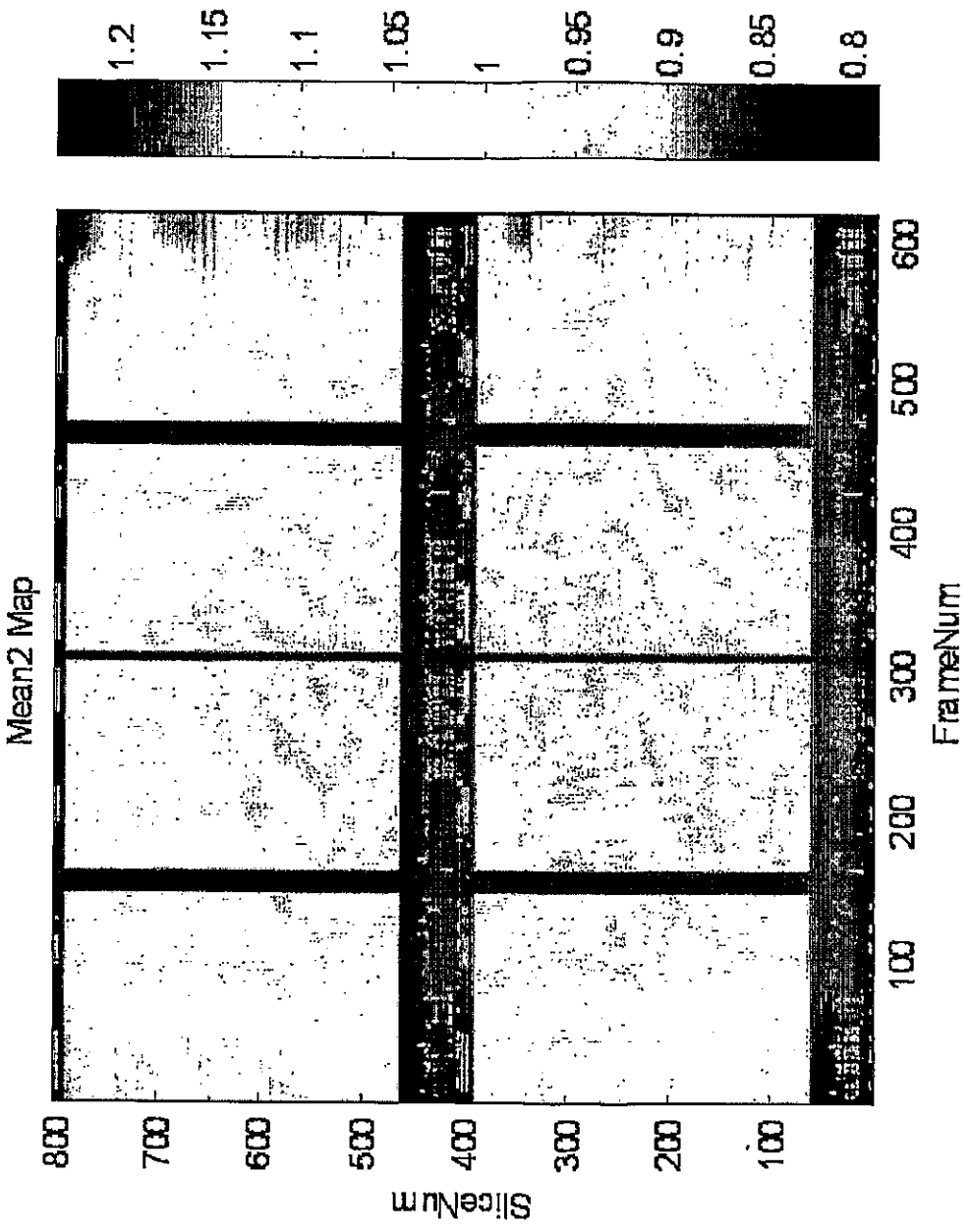
Mean2 Map
1.2
1.15
1.1
1.05
1
0.95
0.9
0.85
0.8
800
700
600
500
400
300
200
100
SliceNum
100
200
300
400
500
600
FrameNum

Fig. 3B

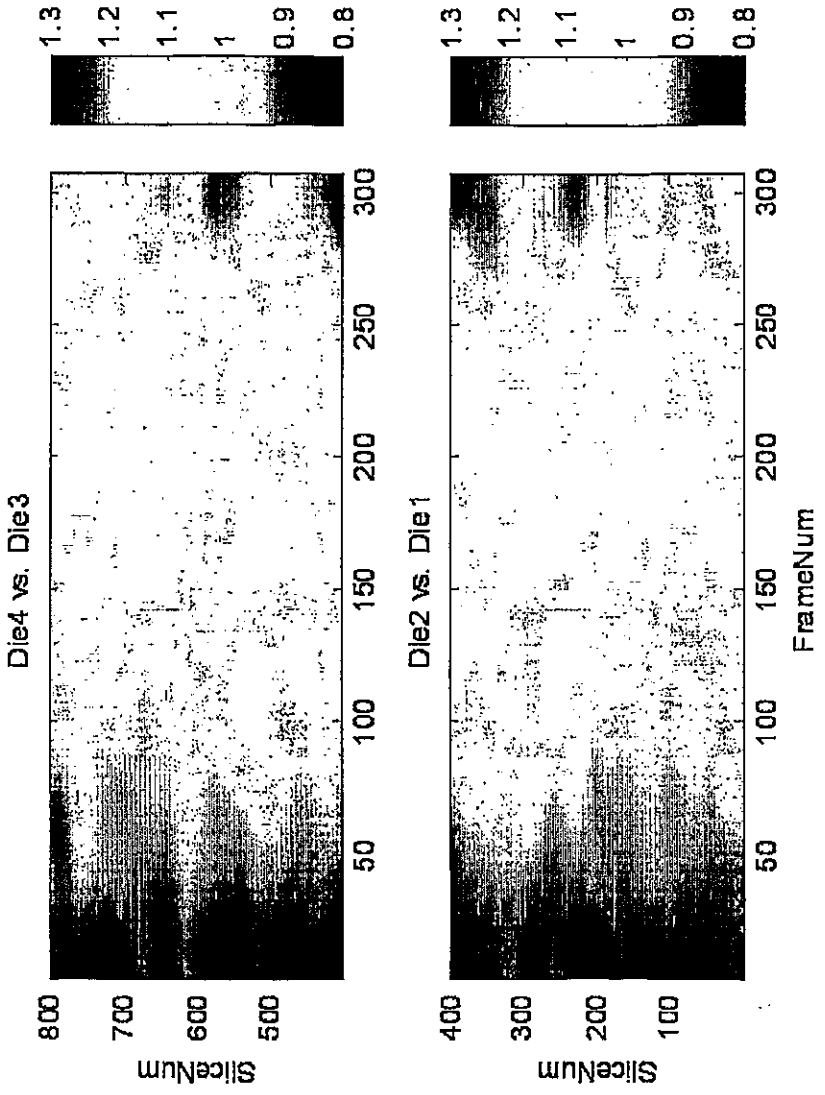
Die4 vs. Die3
Die2 vs. Die1
SliceNum
FrameNum
1.3
1.2
1.1
1
0.9
0.8
800
700
600
500
400
300
200
100
50
100
150
200
250
300

Fig. 3C

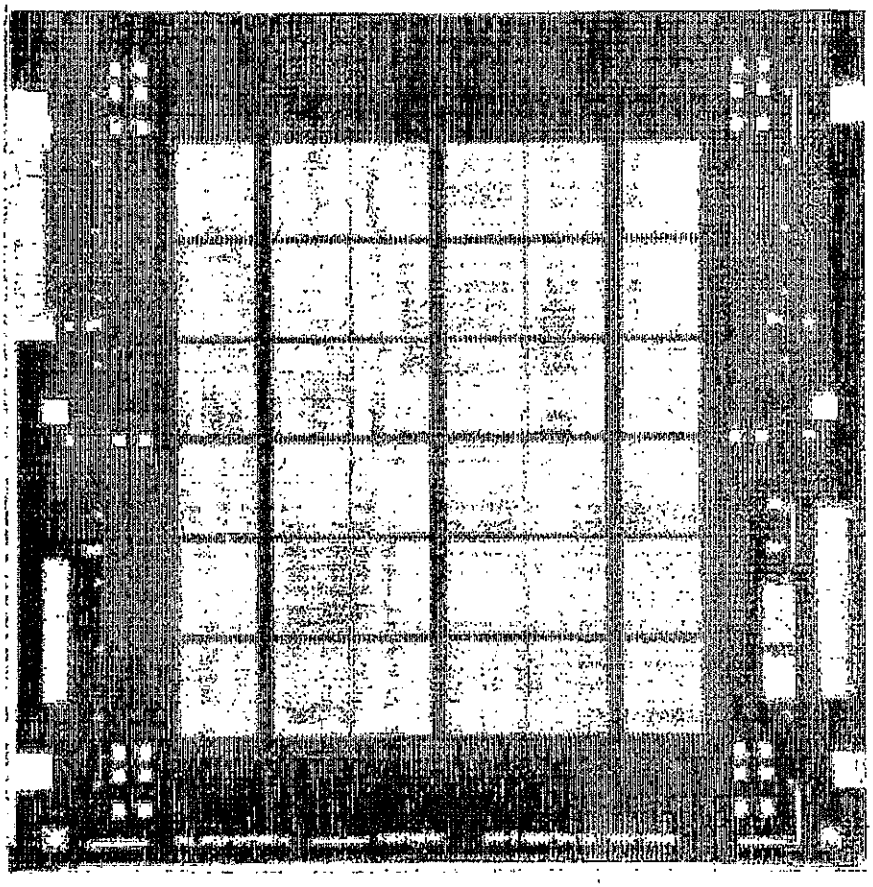

Fig. 4A

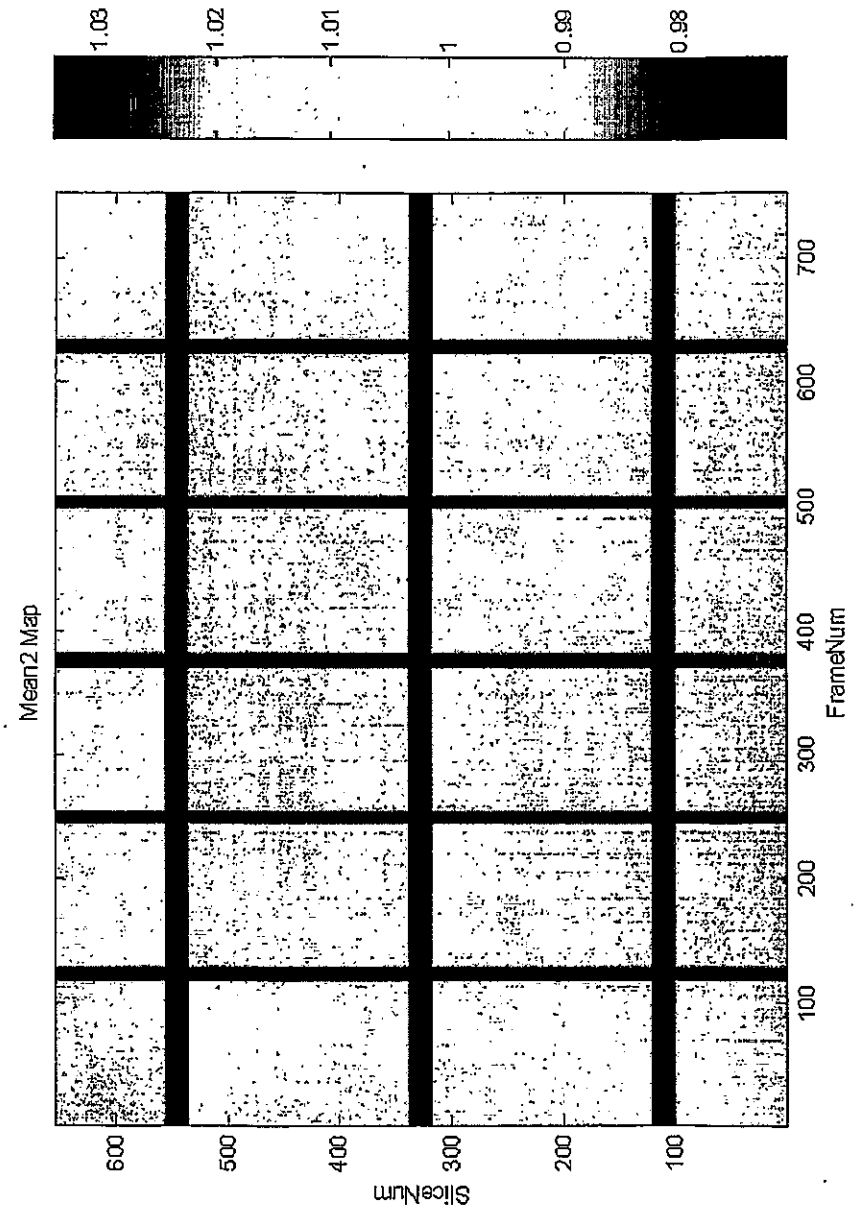
1.03
1.02
1.01
1
0.99
0.98
Mean2 Map
SliceNum
FrameNum
600
500
400
300
200
100
100
200
300
400
500
600
700

Fig.4B

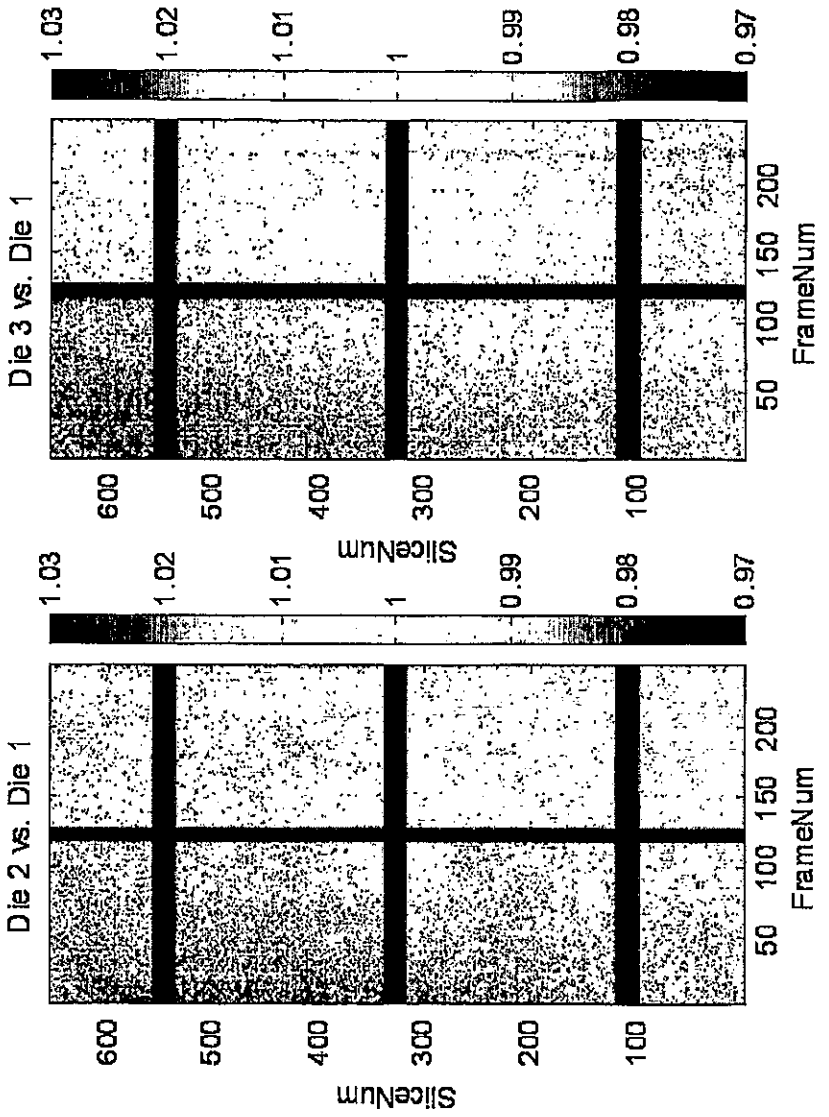
Die 2 vs. Die 1
Die 3 vs. Die 1
SliceNum
FrameNum
1.03
1.02
1.01
1
0.99
0.98
0.97
600
500
400
300
200
100
50
100
150
200

Fig. 4C

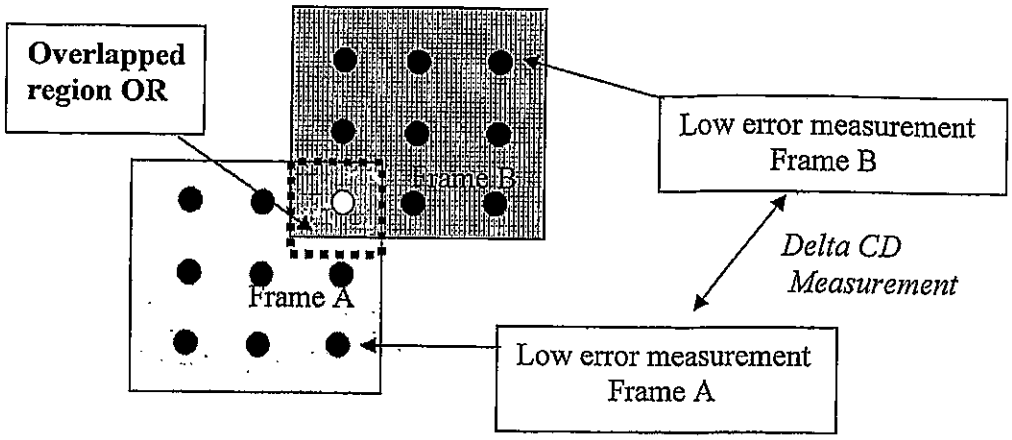
Overlapped region OR
Frame B
Frame A
Low error measurement Frame B
Delta CD Measurement
Low error measurement Frame A

Fig. 5

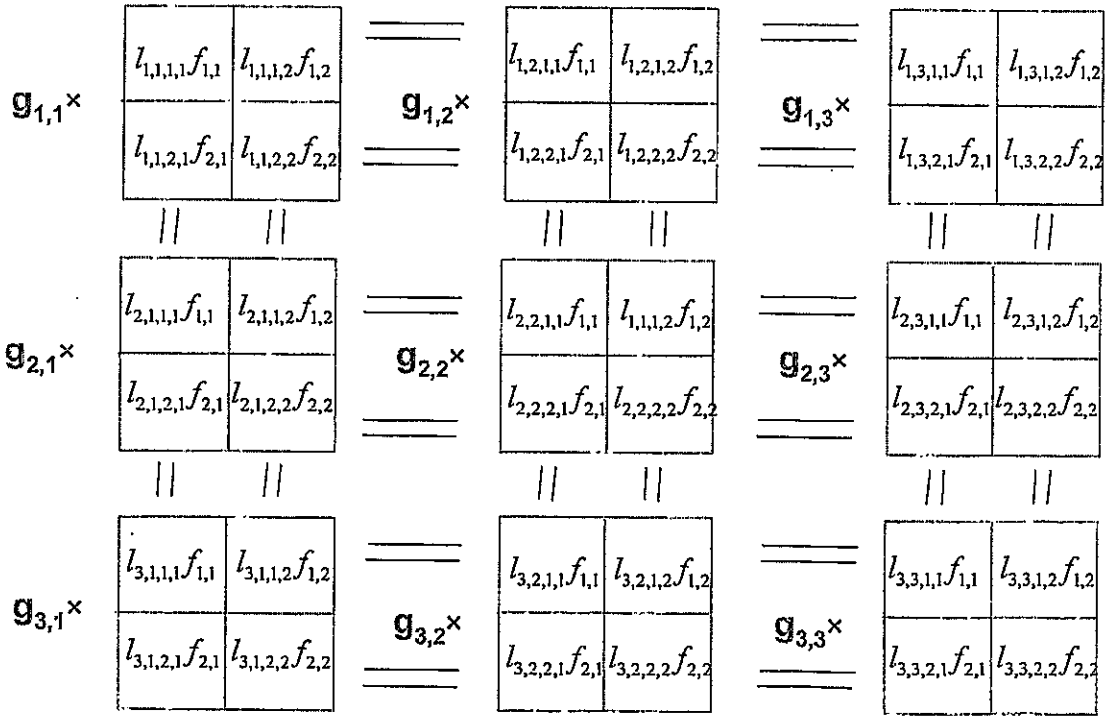
$g_{1,1}^{\times}$
$g_{1,2}^{\times}$
$g_{1,3}^{\times}$
$g_{2,1}^{\times}$
$g_{2,2}^{\times}$
$g_{2,3}^{\times}$
$g_{3,1}^{\times}$
$g_{3,2}^{\times}$
$g_{3,3}^{\times}$
$l_{1,1,1,1}f_{1,1}$ $l_{1,1,1,2}f_{1,2}$ $l_{1,1,2,1}f_{2,1}$ $l_{1,1,2,2}f_{2,2}$
$l_{1,2,1,1}f_{1,1}$ $l_{1,2,1,2}f_{1,2}$ $l_{1,2,2,1}f_{2,1}$ $l_{1,2,2,2}f_{2,2}$
$l_{1,3,1,1}f_{1,1}$ $l_{1,3,1,2}f_{1,2}$ $l_{1,3,2,1}f_{2,1}$ $l_{1,3,2,2}f_{2,2}$
$l_{2,1,1,1}f_{1,1}$ $l_{2,1,1,2}f_{1,2}$ $l_{2,1,2,1}f_{2,1}$ $l_{2,1,2,2}f_{2,2}$
$l_{2,2,1,1}f_{1,1}$ $l_{1,1,1,2}f_{1,2}$ $l_{2,2,2,1}f_{2,1}$ $l_{2,2,2,2}f_{2,2}$
$l_{2,3,1,1}f_{1,1}$ $l_{2,3,1,2}f_{1,2}$ $l_{2,3,2,1}f_{2,1}$ $l_{2,3,2,2}f_{2,2}$
$l_{3,1,1,1}f_{1,1}$ $l_{3,1,1,2}f_{1,2}$ $l_{3,1,2,1}f_{2,1}$ $l_{3,1,2,2}f_{2,2}$
$l_{3,2,1,1}f_{1,1}$ $l_{3,2,1,2}f_{1,2}$ $l_{3,2,2,1}f_{2,1}$ $l_{3,2,2,2}f_{2,2}$
$l_{3,3,1,1}f_{1,1}$ $l_{3,3,1,2}f_{1,2}$ $l_{3,3,2,1}f_{2,1}$ $l_{3,3,2,2}f_{2,2}$

Fig. 6