Structured Grids

STRUCTURED GRIDS

F6 Grids

- Boeing Zeus Advancing Front
- ANSYS ICEM_CFD
- ICEM_Gridpro
- JAXA_multiblock_UPACS

DPW1/W2

- Boeing ICEM
- ANSYS ICEM_CFD

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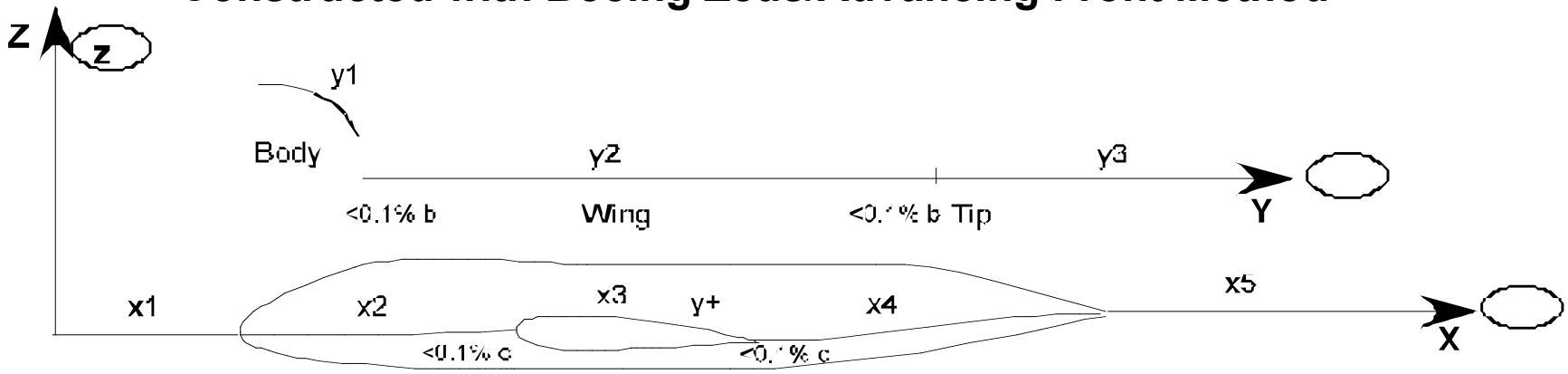
Structured Multi-Block Wing-Body Grids

Constructed with Boeing Zeus/Advancing Front Method



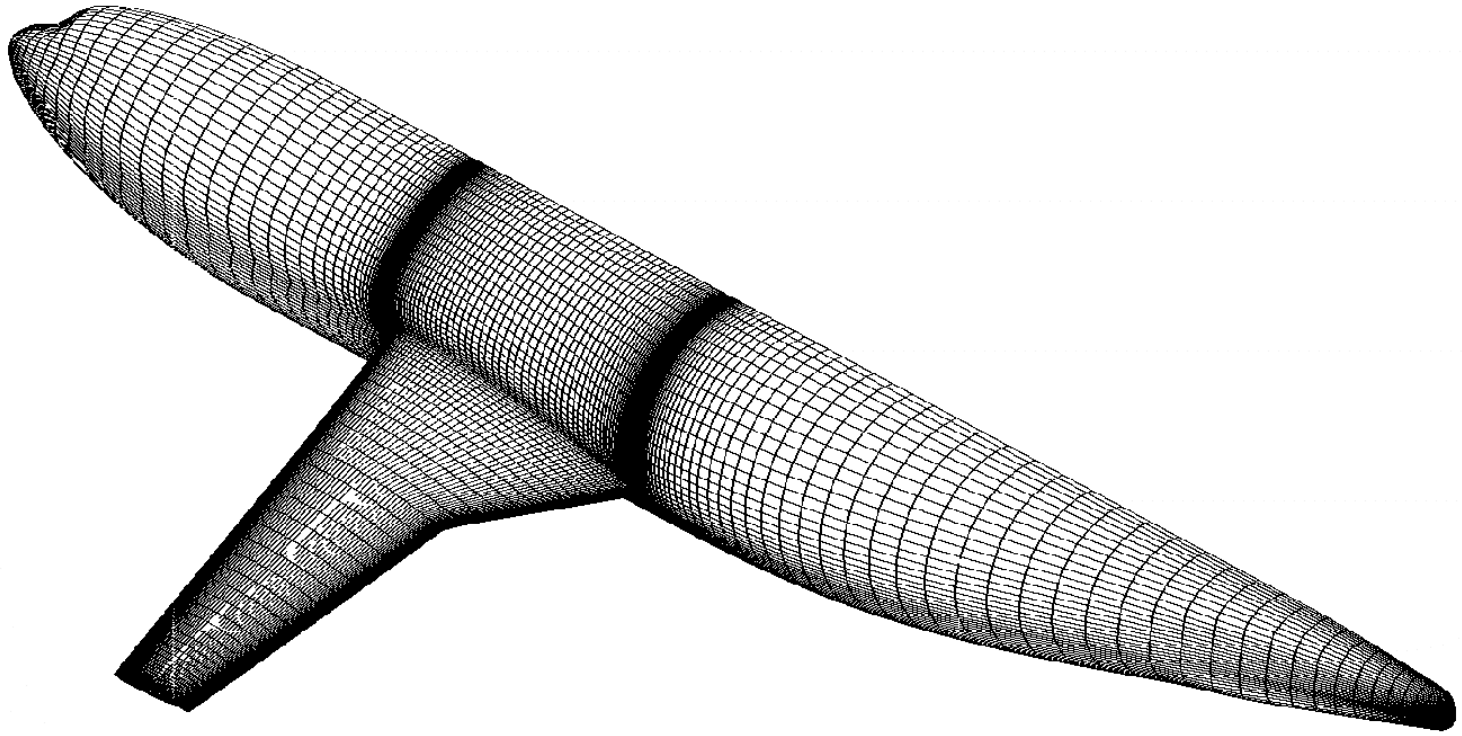
	x1	x2	x3	x4	x5	y1	y2	y3	z
Course	16	48	80	56	16	24	48	16	56
Med	24	72	120	88	24	32	72	24	84
Medfine	28	92	156	112	32	36	92	28	104
Fine	32	108	180	136	36	56	112	32	128

Blunt TE	z	y2
Course	32	48
Med	48	72
Medfine	60	92
Fine	72	112

Boundary Layer	# Cells	Ave y+
Course	24	0.82
Med	32	0.60
Medfine	40	0.50
Fine	48	0.40

Total Grid Size
2.6E+06
9.2E+06
1.8E+07
3.1E+07

Structured Multi-Block Wing-Body Grids
Constructed with Boeing Zeus/Advancing Front Method



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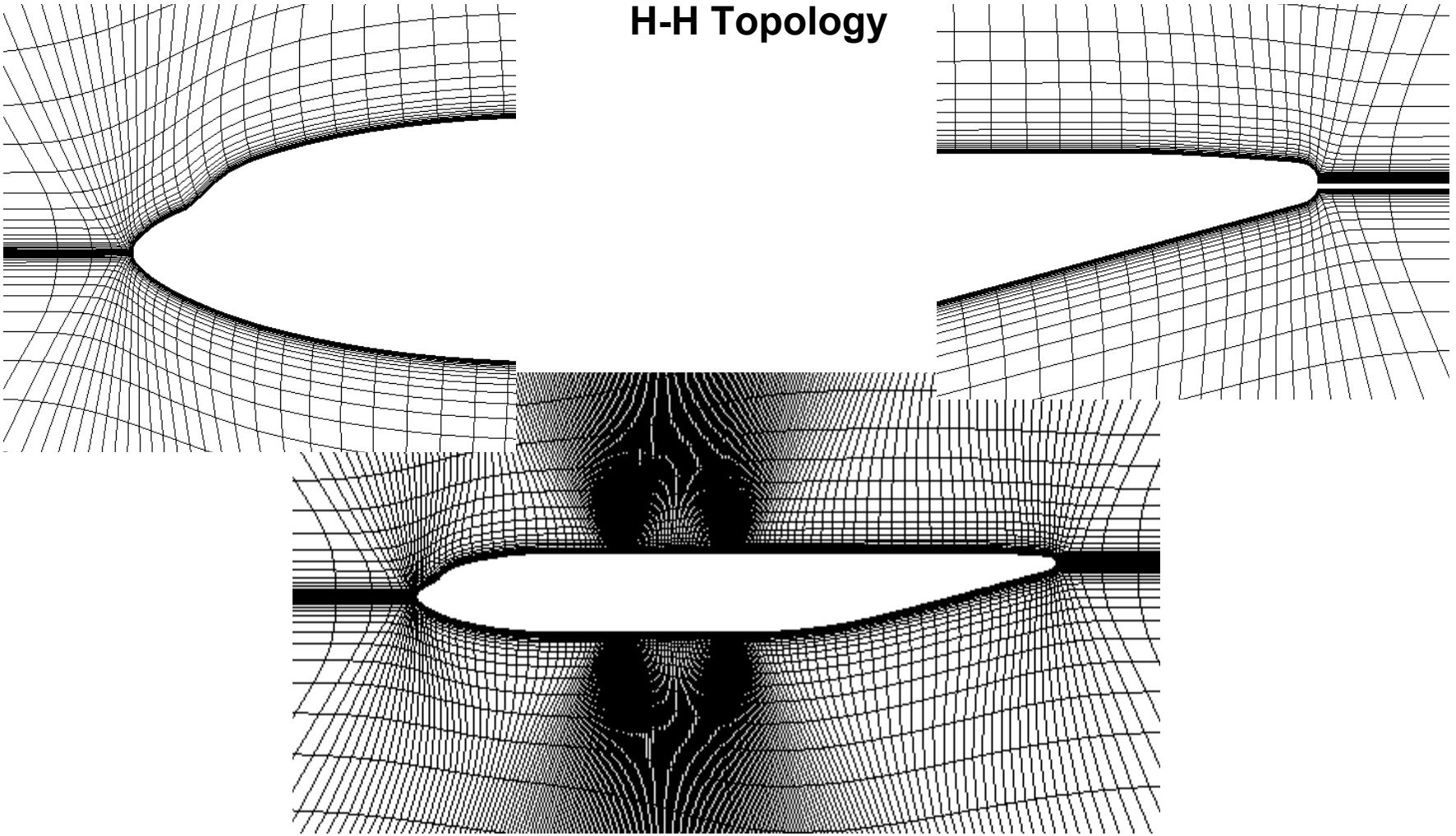
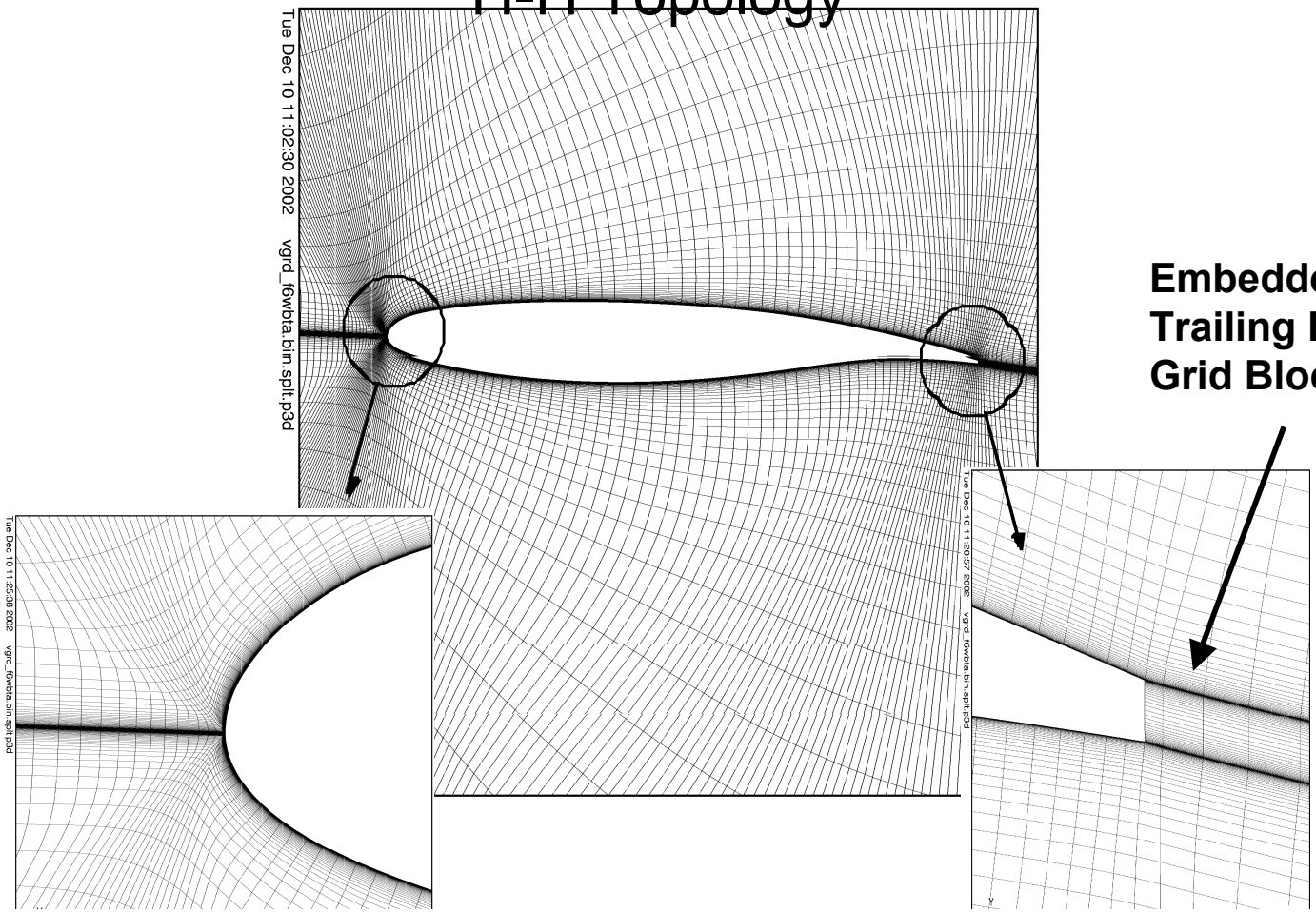
Typical Centerline Grid

H-H Topology



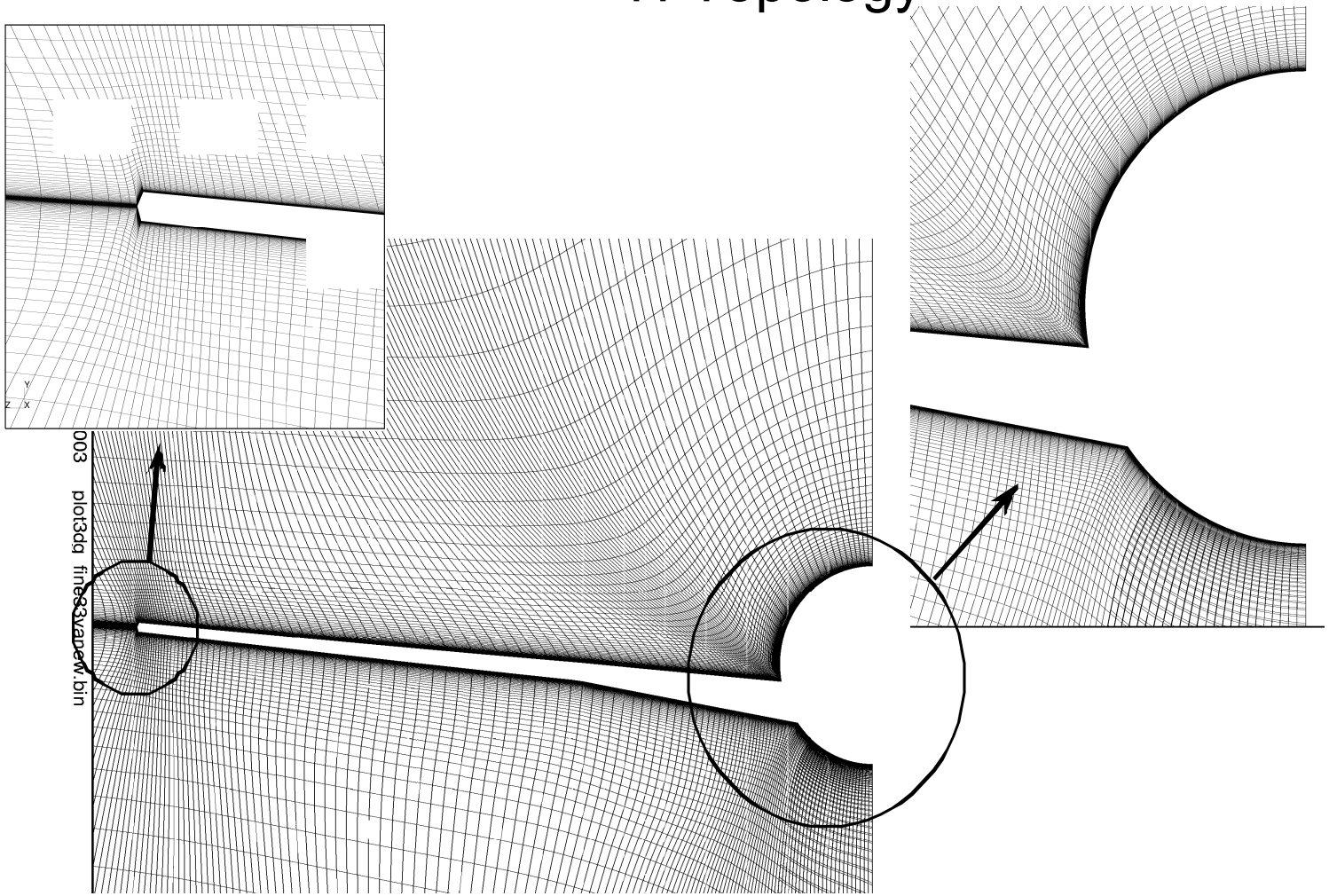
Typical Wing Grid
H-H Topology



Embedded Blunt Trailing Edge Grid Block

Typical I-plane Grid

H-Topology



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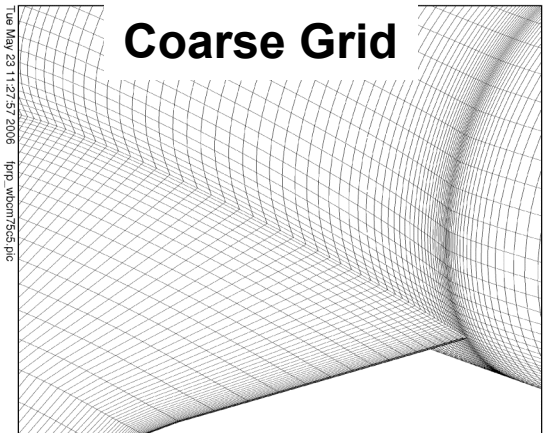
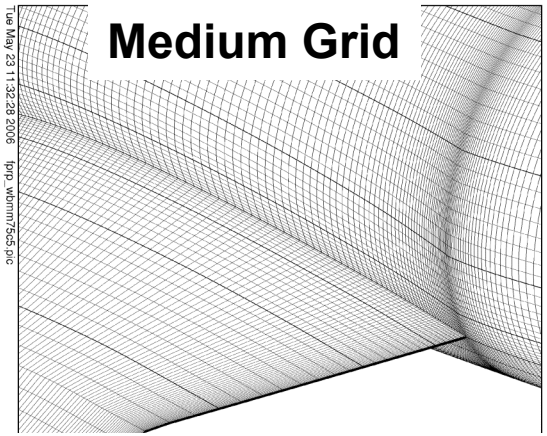
Grid Refinement – F6 Wing-Body

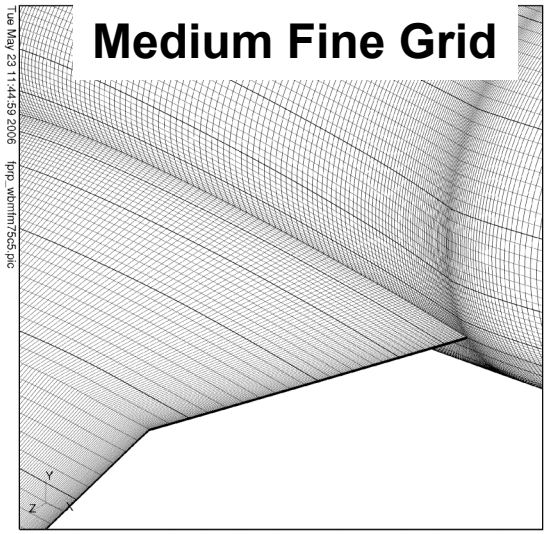
Coarse Grid



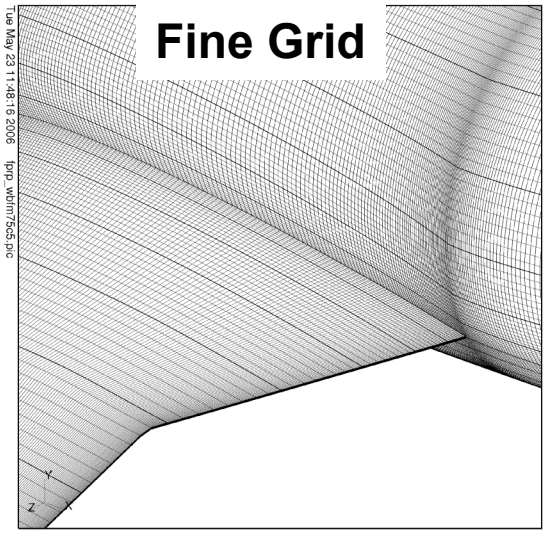
Medium Grid



Medium Fine Grid



Fine Grid



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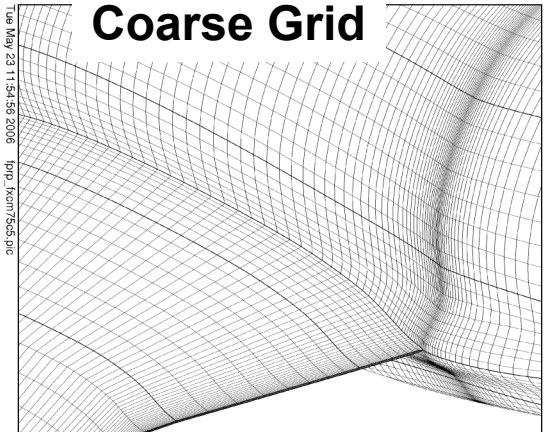
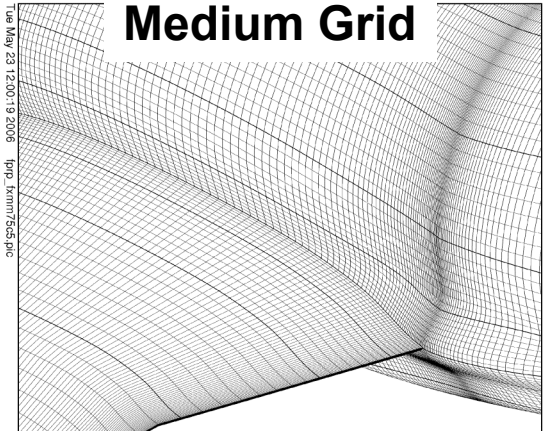
Grid Refinement – F6 Wing-Body w/FX2 Fairing

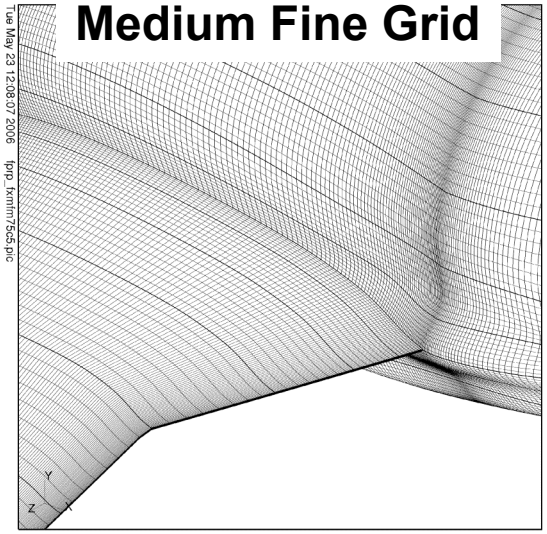
Coarse Grid



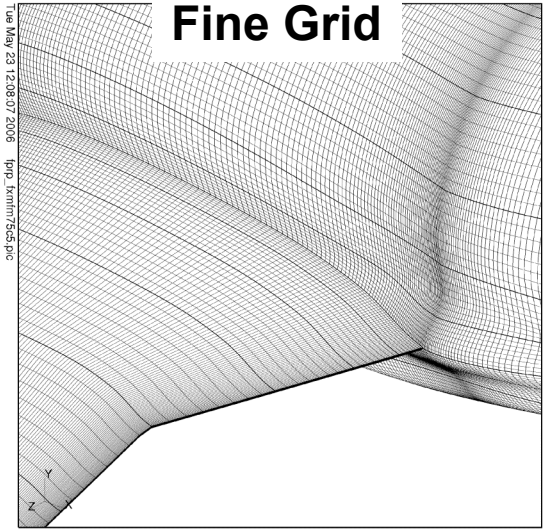
Medium Grid



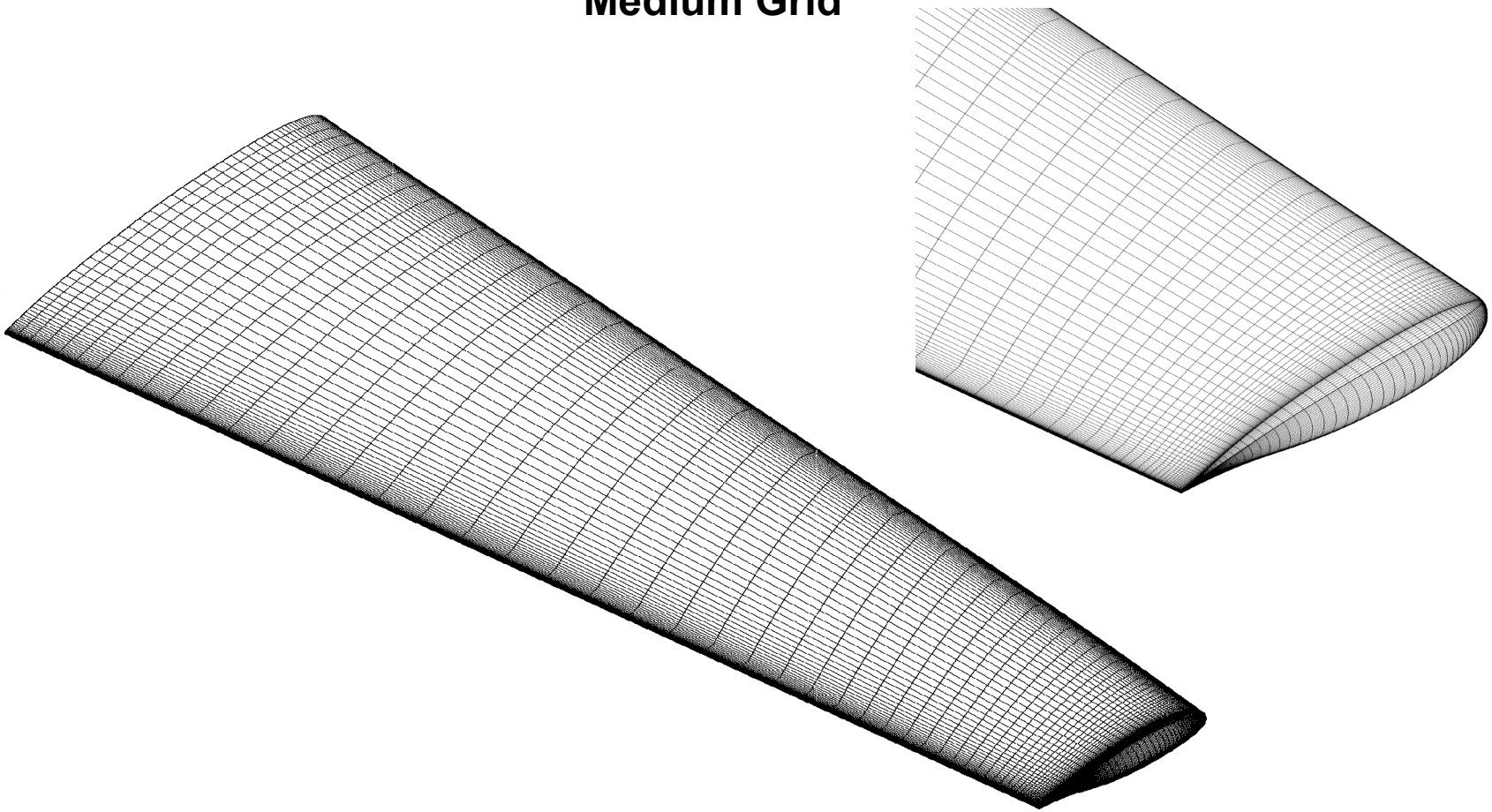
Medium Fine Grid



Fine Grid



DPW-W1/W2 ICEM Structured Grids
Medium Grid



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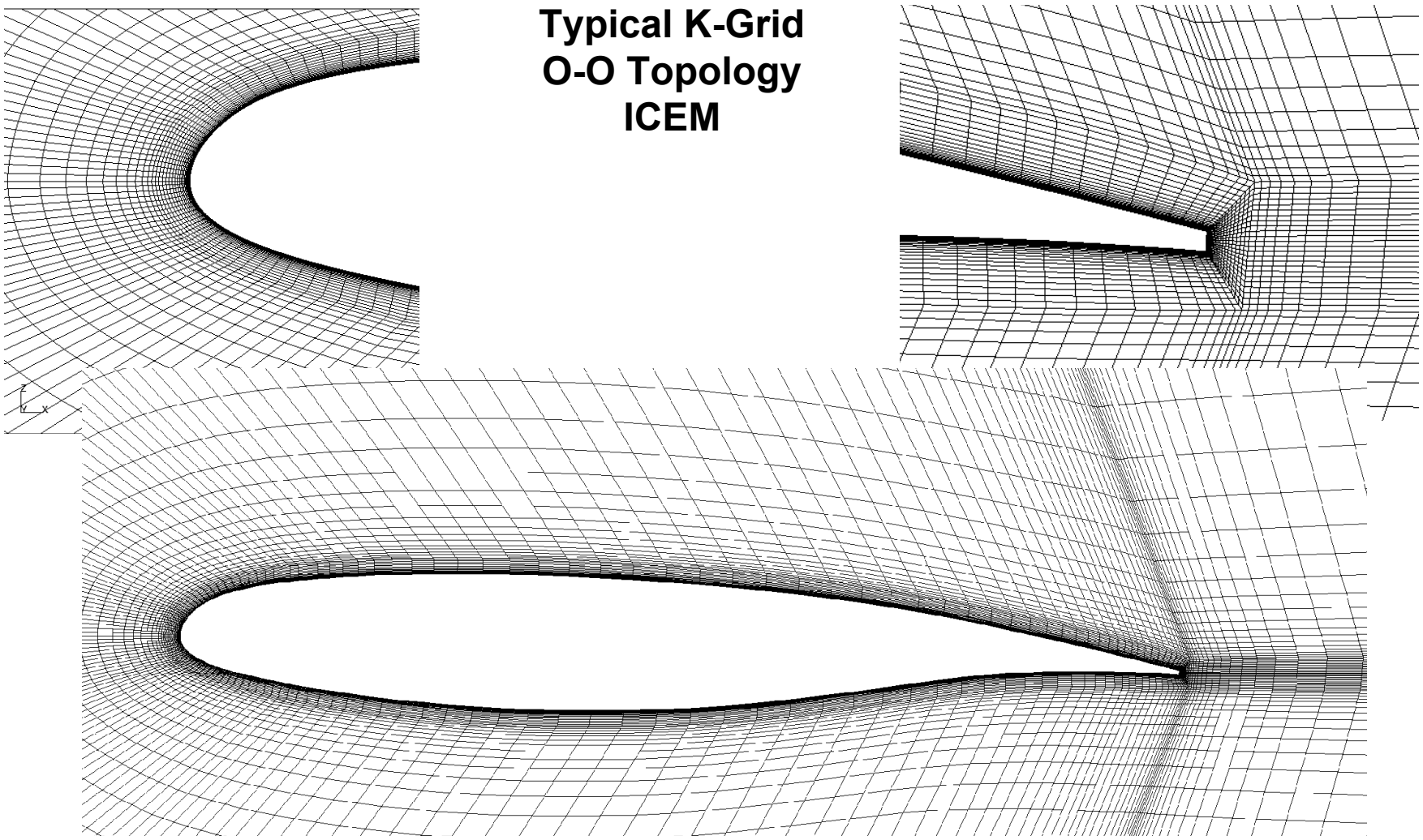
DPW-W1/W2
Typical K-Grid
O-O Topology
ICEM



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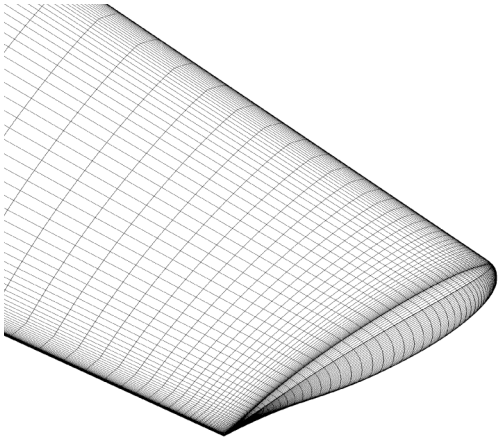
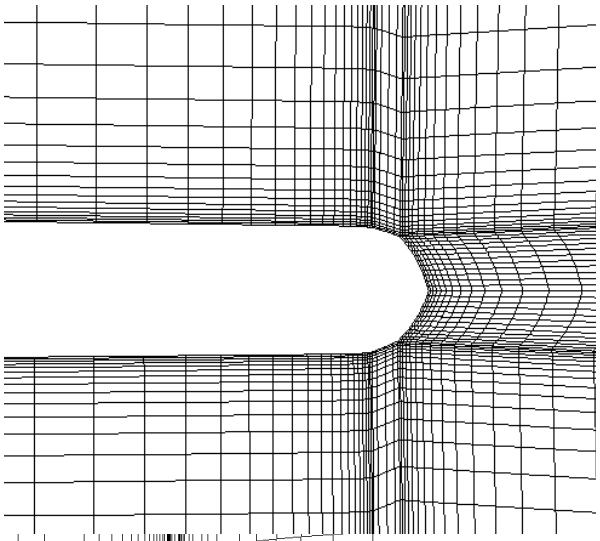
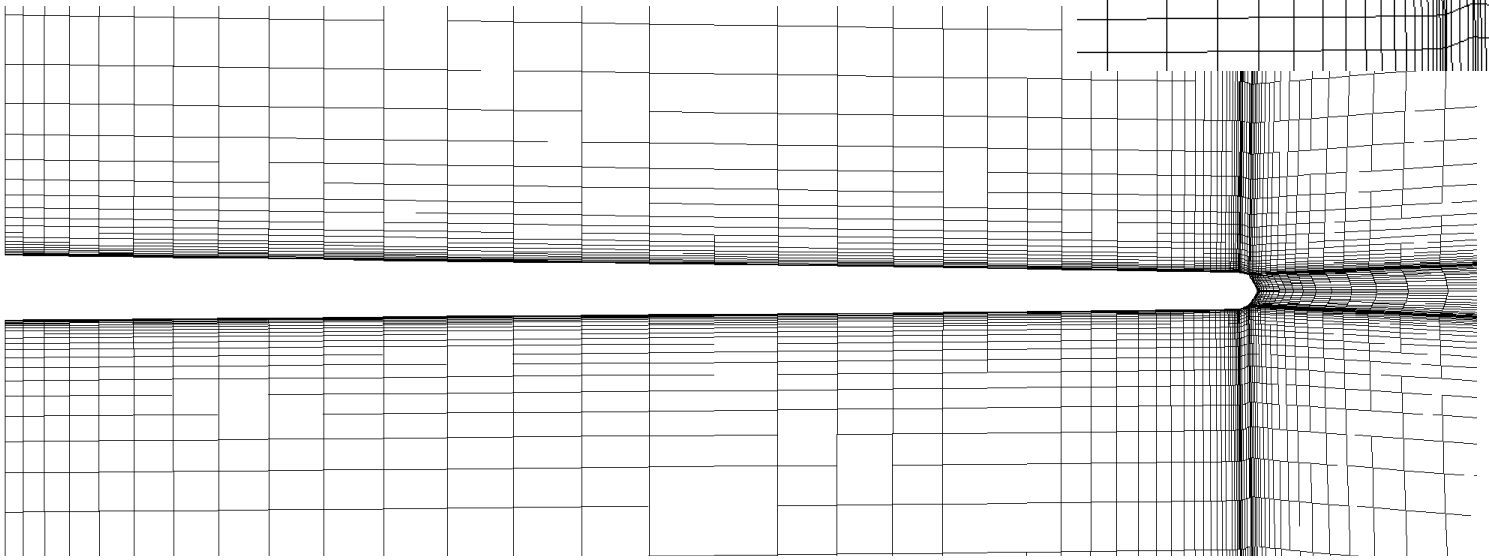
DPW-W1/W2
Typical I-Grid
O Topology
ICEM







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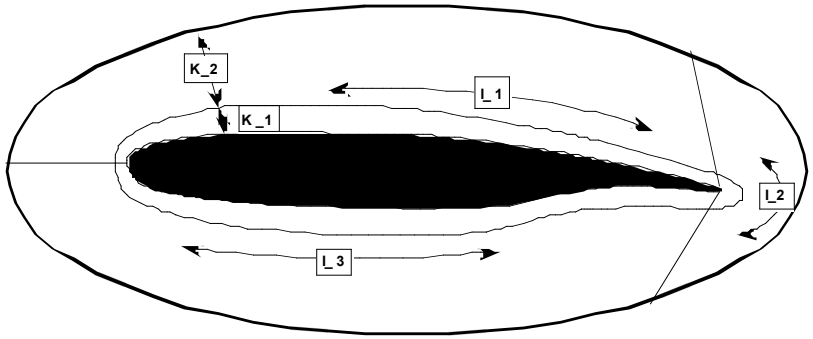
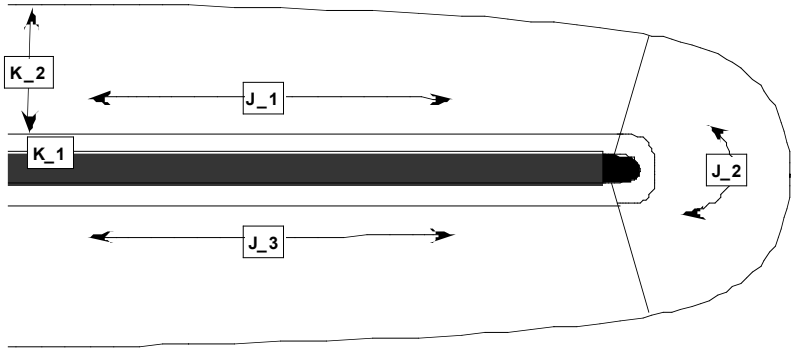
Structured Multi-Block DPW-W1/W2 Grids

Constructed with ICEM





	I_1	I-2	I_3	J_1	J_2	J_3	K_1	K_3	Total Grid Size
Coarse	73	25	73	49	25	49	33	49	1.60E+06
Medium	81	33	81	73	33	73	49	73	4.20E+06
Medium Fine	121	49	121	73	49	73	65	97	8.60E+06
Fine	145	49	145	105	49	105	73	105	1.47E+07

Gridding Guidelines not met - Grids were not uniformly refined!