

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.5253237585, median 0.475045073655, std: 0.291491528035

Gyroscope error (imu0): mean 0.000712203901796, median 3.79723943746e-08, std: 0.00539094686849

Accelerometer error (imu0): mean 0.000862117485546, median 0.000862601204705, std: 3.45185952611e-06

Residuals

Reprojection error (cam0) [px]: mean 0.5253237585, median 0.475045073655, std: 0.291491528035

Gyroscope error (imu0) [rad/s]: mean 1.46001799868e-05, median 7.7843408468e-10, std: 0.000110514410804

Accelerometer error (imu0) [m/s²]: mean 2.75877595375e-06, median 2.76032385506e-06, std: 1.10459504835e-08

Transformation (cam0):

T_ci: (imu0 to cam0):

[[0.00362616 -0.99960975 0.02769844 -0.00094624]

[-0.109686 -0.02792908 -0.99357383 0.00019912]

[0.99395967 0.00056473 -0.10974447 -0.00308243]

[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[0.00362616 -0.109686 0.99395967 0.00308908]

[-0.99960975 -0.02792908 0.00056473 -0.00093857]

[0.02769844 -0.99357383 -0.10974447 -0.00011423]

[0. 0. 0. 1.]]

timeshift cam0 to imu0: [s] (t_imu = t_cam + shift)

0.0

Gravity vector in target coords: [m/s²]

[1.8794379 -9.5926086 0.78612744]

Calibration configuration

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cam0

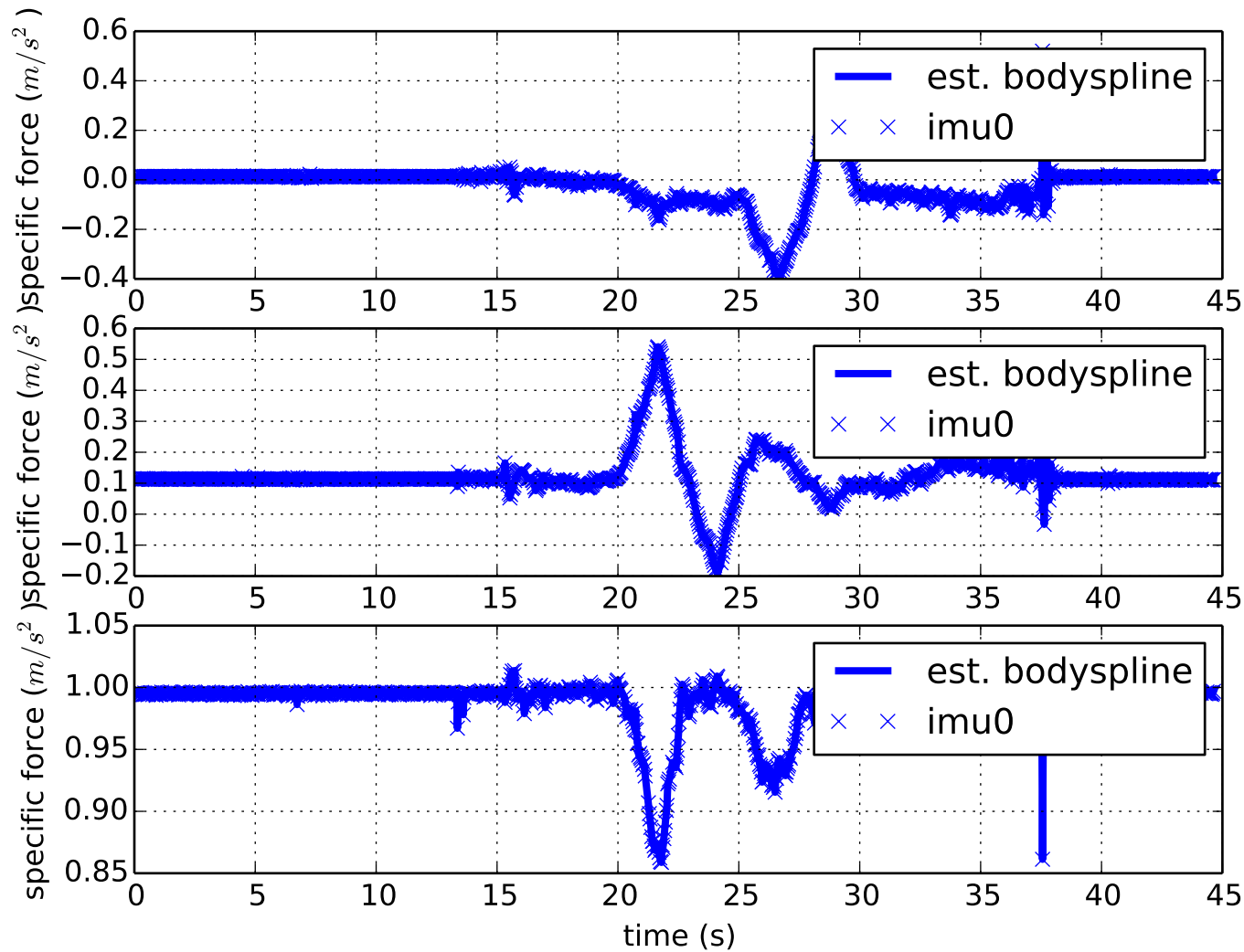
Camera model: omni
Focal length: [149.781, 149.6935]
Principal point: [160.0177, 115.0287]
Omni xi: 0.8731
Distortion model: radtan
Distortion coefficients: [-0.0578, 0.0052, -0.00030508, 7.2296e-05]
Type: aprilgrid
Tags:
 Rows: 6
 Cols: 6
 Size: 0.03 [m]
 Spacing 0.00999 [m]

IMU configuration
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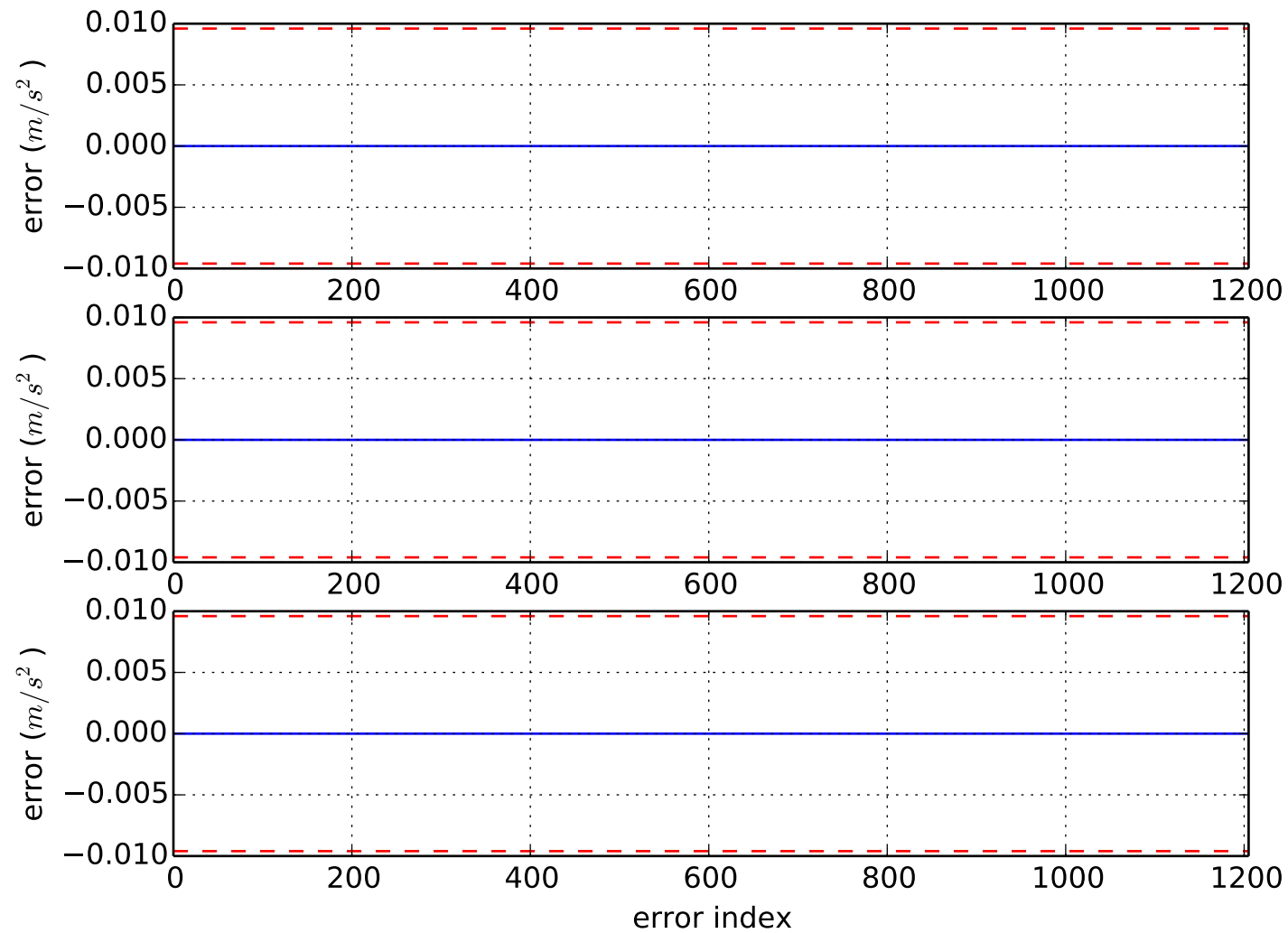
IMU0:

Model: calibrated
Update rate: 25
Accelerometer:
 Noise density: 0.00064
 Noise density (discrete): 0.0032
 Random walk: 8.86e-07
Gyroscope:
 Noise density: 0.0041
 Noise density (discrete): 0.0205
 Random walk: 5.7e-07
 T_{i_b}
 [[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]
time offset with respect to IMU0: 0.0 [s]

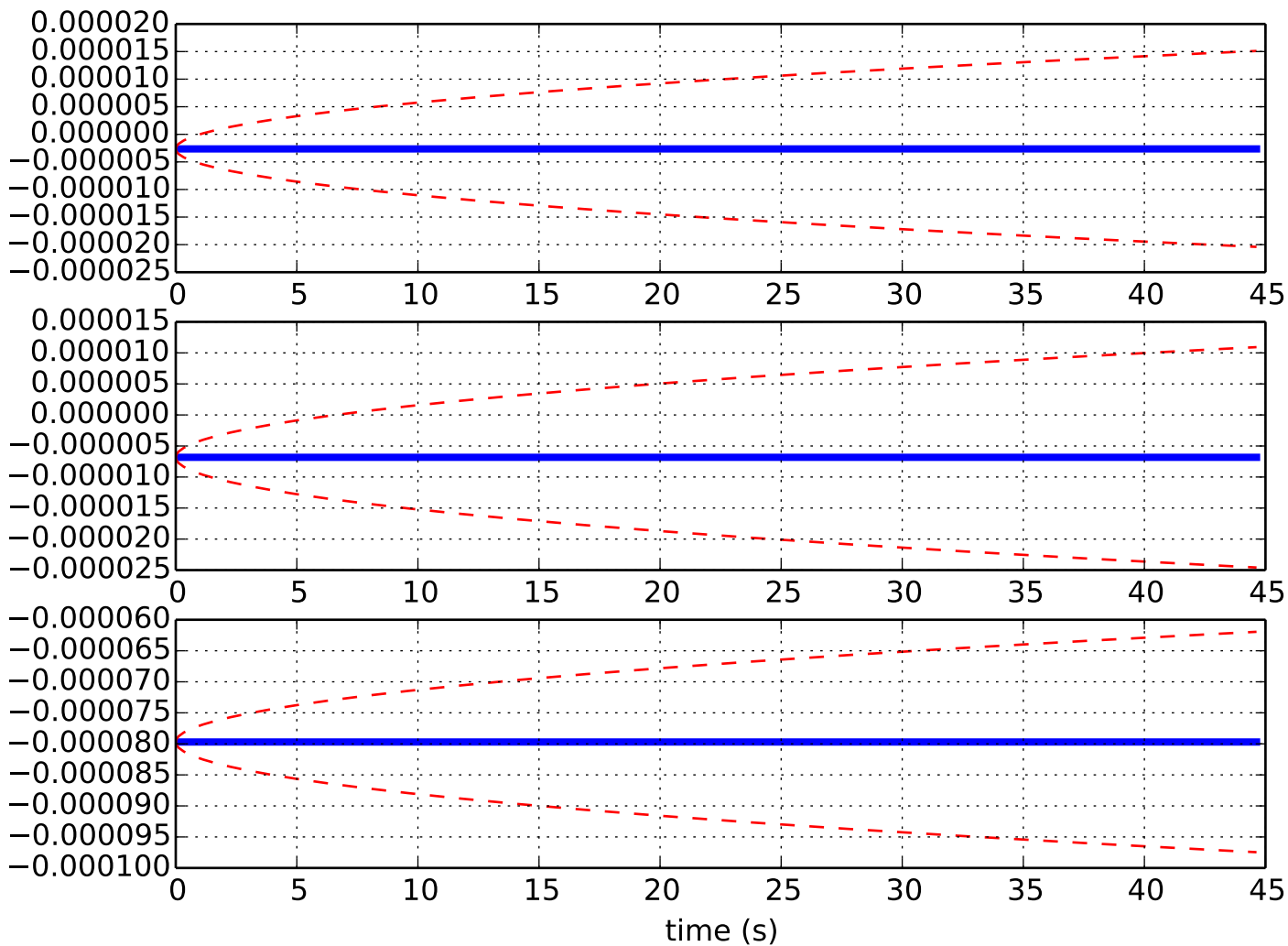
Comparison of predicted and measured specific force (imu0 frame)



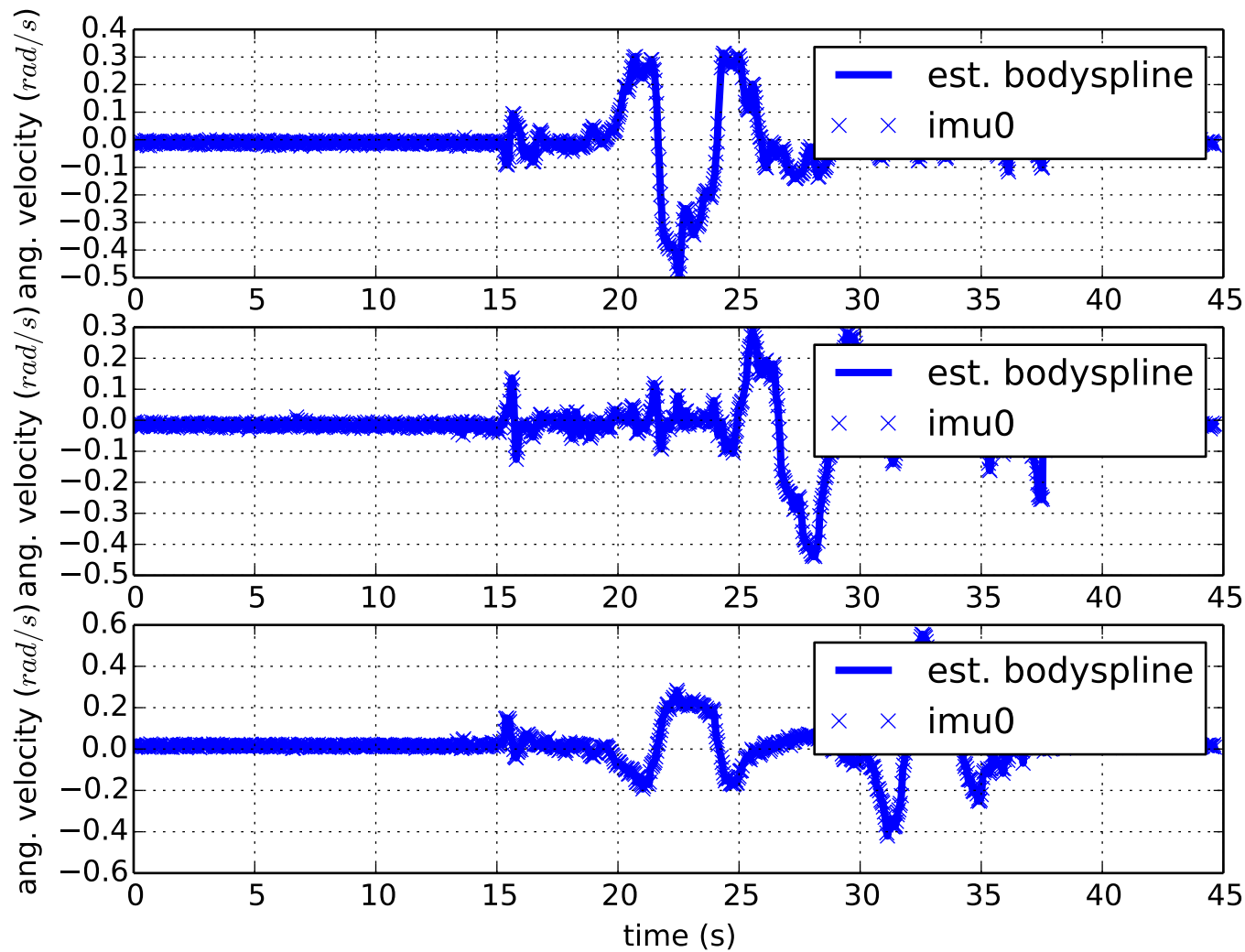
imu0: acceleration error



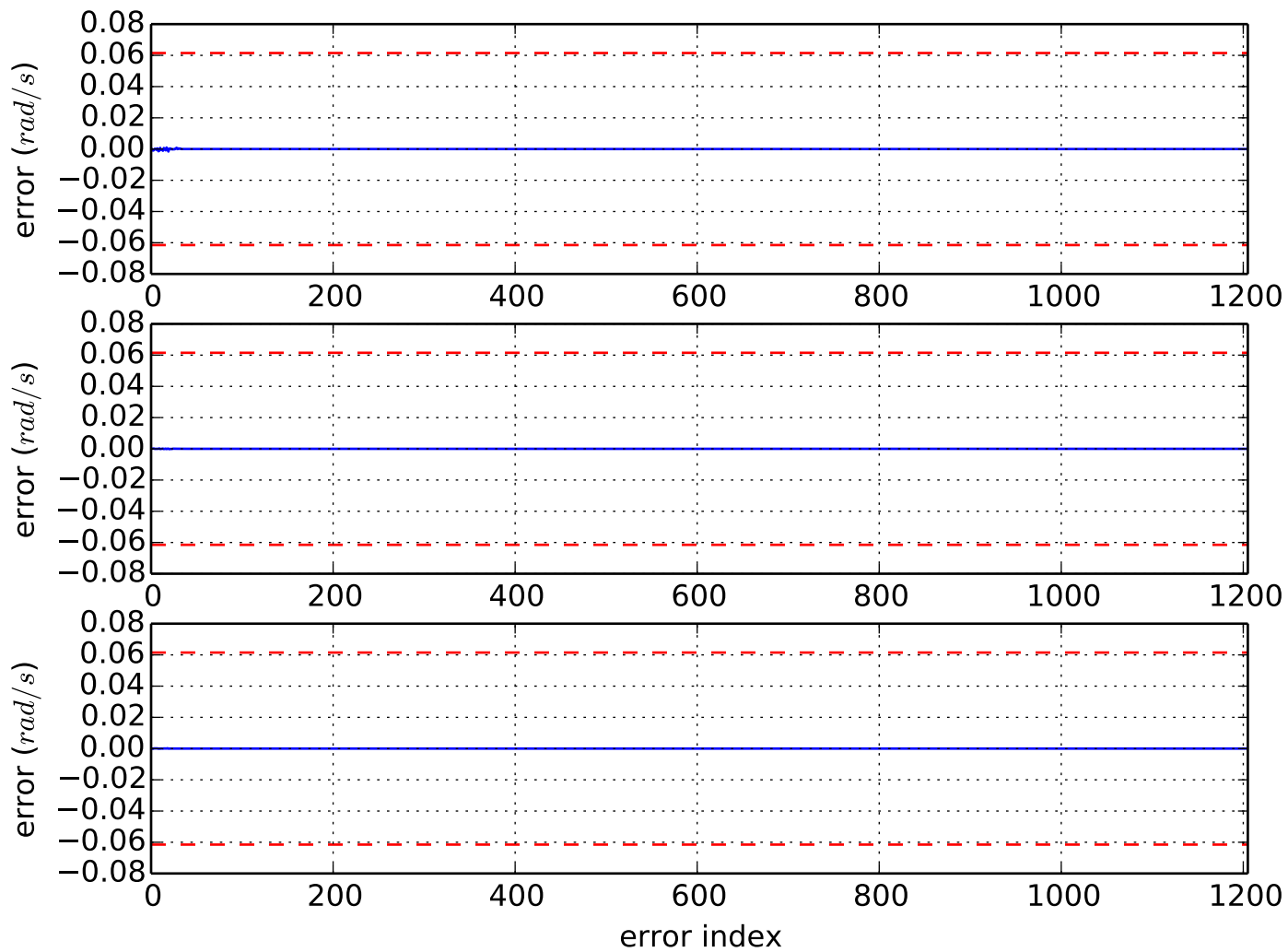
imu0: estimated accelerometer bias (imu frame)



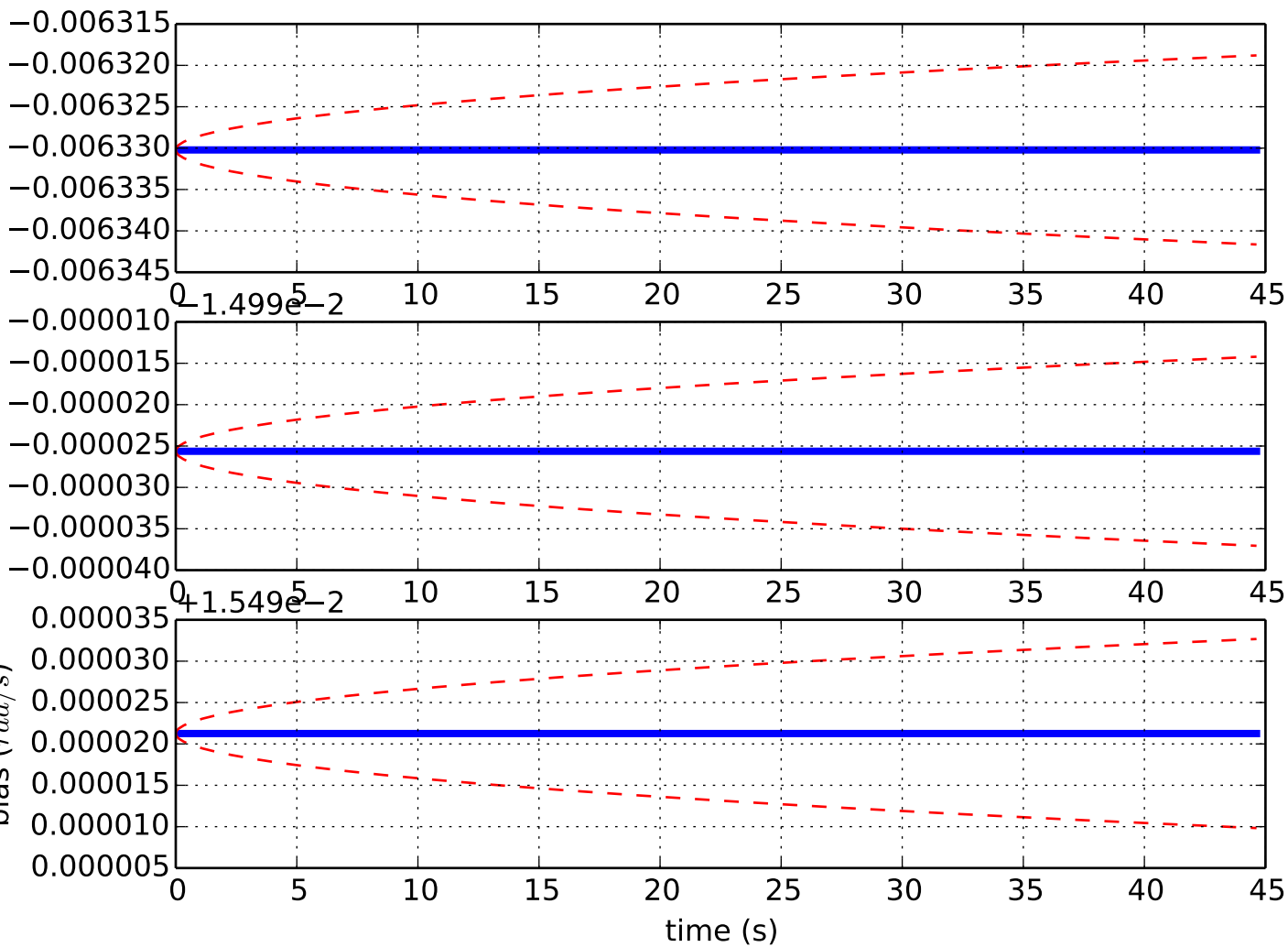
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

