TABLE 1
Model Comparison

AICc Qualitative Comparison	Free Parameters	$N_{\rm free}$	$N_{\rm data}$	RMS	$\ln \mathcal{L}$	BIC	AICc	ΔAICc
AICc Favored Model	K_b, K_c, K_d, K_e, K_f, $\dot{\gamma}$, σ, γ	8	99	3.98	-214.56	591.02	571.86	0.00
Nearly Indistinguishable	K_b, K_c, K_e, K_f, $\dot{\gamma}$, σ, γ	7	99	4.06	-216.48	590.28	573.34	1.48
Somewhat Disfavored	K_b, K_c, K_d, K_e, K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	9	99	3.98	-214.56	595.62	574.28	2.42
	K_b, K_c, K_e, K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	8	99	4.06	-216.48	594.87	575.71	3.85
Ruled Out	K_b, K_c, K_d, K_f, $\dot{\gamma}$, σ, γ	7	99	4.35	-223.42	604.15	587.22	15.36
	K_b, K_c, K_d, K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	8	99	4.35	-223.42	608.75	589.59	17.73
	K_b, K_c, K_f, $\dot{\gamma}$, σ, γ	6	99	4.49	-226.54	605.80	591.14	19.28
	K_c, K_d, K_e, K_f, $\dot{\gamma}$, σ, γ	7	99	4.47	-226.19	609.68	592.74	20.88
	K_b, K_c, K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	7	99	4.49	-226.54	610.39	593.46	21.60
	K_c, K_e, K_f, $\dot{\gamma}$, σ, γ	6	99	4.54	-227.81	608.33	593.68	21.82
	K_c, K_d, K_e, K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	8	99	4.47	-226.19	614.27	595.11	23.25
	K_c, K_e, K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	7	99	4.54	-227.81	612.93	595.99	24.13
	K_c, K_d, K_f, $\dot{\gamma}$, σ, γ	6	99	4.77	-232.56	617.84	603.18	31.32
	K_b, K_c, K_d, K_e, $\dot{\gamma}$, σ, γ	7	99	4.76	-232.34	621.98	605.05	33.19
	K_c, K_d, K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	7	99	4.77	-232.56	622.43	605.50	33.64
	K_b, K_d, K_e, K_f, $\dot{\gamma}$, σ, γ	7	99	4.79	-232.78	622.86	605.92	34.06
	K_c, K_f, $\dot{\gamma}$, σ, γ	5	99	4.90	-235.17	618.45	606.12	34.26
	K_b, K_e, K_f, $\dot{\gamma}$, σ, γ	6	99	4.88	-234.50	621.71	607.05	35.19
	K_b, K_c, K_d, K_e, K_{add_de}, $\dot{\gamma}$, σ, γ	8	99	4.76	-232.34	626.58	607.42	35.56
	K_b, K_c, K_e, $\dot{\gamma}$, σ, γ	6	99	4.89	-235.01	622.74	608.08	36.22
	K_b, K_d, K_e, K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	8	99	4.79	-232.78	627.45	608.29	36.43
	K_c, K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	6	99	4.90	-235.17	623.04	608.38	36.52
	K_b, K_e, K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	7	99	4.88	-234.50	626.30	609.37	37.51
	K_b, K_c, K_e, K_{add_de}, $\dot{\gamma}$, σ, γ	7	99	4.89	-235.01	627.33	610.40	38.54
	K_b, K_c, K_d, $\dot{\gamma}$, σ, γ	6	99	5.06	-238.48	629.67	615.01	43.15
	K_d, K_e, K_f, $\dot{\gamma}$, σ, γ	6	99	5.10	-239.20	631.10	616.45	44.59
	K_b, K_d, K_f, $\dot{\gamma}$, σ, γ	6	99	5.13	-239.60	631.91	617.25	45.39
	K_e, K_f, $\dot{\gamma}$, σ, γ	5	99	5.19	-240.74	629.60	617.27	45.41
	K_b, K_c, K_d, K_{add_de}, $\dot{\gamma}$, σ, γ	7	99	5.06	-238.48	634.26	617.33	45.47
	K_d, K_e, K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	7	99	5.10	-239.22	635.75	618.81	46.95
	K_e, K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	6	99	5.19	-240.74	634.20	619.54	47.68
	K_b, K_d, K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	7	99	5.13	-239.60	636.50	619.57	47.71
	K_b, K_c, $\dot{\gamma}$, σ, γ	5	99	5.26	-242.30	632.72	620.39	48.53
	K_b, K_f, $\dot{\gamma}$, σ, γ	5	99	5.28	-242.39	632.90	620.57	48.71
	K_b, K_c, K_{add_de}, $\dot{\gamma}$, σ, γ	6	99	5.26	-242.30	637.31	622.65	50.79
	K_b, K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	6	99	5.28	-242.39	637.49	622.83	50.97
	K_c, K_d, K_e, $\dot{\gamma}$, σ, γ	6	99	5.32	-243.40	639.52	624.86	53.00
	K_d, K_f, $\dot{\gamma}$, σ, γ	5	99	5.39	-244.66	637.43	625.10	53.24
	K_c, K_d, K_e, K_{add_de}, $\dot{\gamma}$, σ, γ	7	99	5.32	-243.40	644.11	627.17	55.31
	K_c, K_e, $\dot{\gamma}$, σ, γ	5	99	5.45	-245.76	639.64	627.31	55.45
	K_d, K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	6	99	5.39	-244.66	642.02	627.37	55.51
	K_f, $\dot{\gamma}$, σ, γ	4	99	5.54	-247.15	637.82	627.87	56.01
	K_b, K_d, K_e, $\dot{\gamma}$, σ, γ	6	99	5.41	-244.95	642.61	627.95	56.09
	K_c, K_e, K_{add_de}, $\dot{\gamma}$, σ, γ	6	99	5.45	-245.76	644.24	629.58	57.72
	K_f, K_{add_de}, $\dot{\gamma}$, σ, γ	5	99	5.54	-247.15	642.42	630.09	58.23
	K_b, K_d, K_e, K_{add_de}, $\dot{\gamma}$, σ, γ	7	99	5.41	-244.95	647.21	630.27	58.41
	K_b, K_e, $\dot{\gamma}$, σ, γ	5	99	5.54	-247.38	642.88	630.55	58.69
	K_c, K_d, $\dot{\gamma}$, σ, γ	5	99	5.56	-247.72	643.55	631.22	59.36
	K_b, K_e, K_{add_de}, $\dot{\gamma}$, σ, γ	6	99	5.54	-247.38	647.48	632.82	60.96
	K_c, K_d, K_{add_de}, $\dot{\gamma}$, σ, γ	6	99	5.56	-247.72	648.15	633.49	61.63

TABLE 2
MCMC Posteriors

Parameter	Credible Interval	Maximum Likelihood	Units
Modified MCMC Step Parameters			
P_b	$\equiv 4.31$	$\equiv 4.31$	days
$T\mathrm{conj}_\mathrm{b}$	$\equiv 2458686.5658$	$\equiv 2458686.5658$	JD
$T\mathrm{peri}_\mathrm{b}$	$\equiv 2458685.4883$	$\equiv 2458685.4883$	JD
e_b	$\equiv 0.0$	$\equiv 0.0$	
ω_b	$\equiv 0.0$	$\equiv 0.0$	radians
K_b	2.9 ± 0.6	2.9	m s^{-1}
P_c	$\equiv 5.9$	$\equiv 5.9$	days
$T\mathrm{conj}_\mathrm{c}$	$\equiv 2458683.4661$	$\equiv 2458683.4661$	JD
$T\mathrm{peri}_\mathrm{c}$	$\equiv 2458681.9911$	$\equiv 2458681.9911$	JD
e_c	$\equiv 0.0$	$\equiv 0.0$	
ω_c	$\equiv 0.0$	$\equiv 0.0$	radians
K_c	3.82 ± 0.62	3.84	m s^{-1}
P_d	$\equiv 18.66$	$\equiv 18.66$	days
$T\mathrm{conj}_\mathrm{d}$	$\equiv 2458688.9653$	$\equiv 2458688.9653$	JD
$T\mathrm{peri}_\mathrm{d}$	$\equiv 2458684.3003$	$\equiv 2458684.3003$	JD
e_d	$\equiv 0.0$	$\equiv 0.0$	
ω_d	$\equiv 0.0$	$\equiv 0.0$	radians
K_d	$1.22^{+0.63}_{-0.59}$	1.18	m s^{-1}
P_e	$\equiv 37.92$	$\equiv 37.92$	days
$T\mathrm{conj}_\mathrm{e}$	$\equiv 2457000.7134$	$\equiv 2457000.7134$	JD
$T\mathrm{peri}_\mathrm{e}$	$\equiv 2456991.2334$	$\equiv 2456991.2334$	JD
e_e	$\equiv 0.0$	$\equiv 0.0$	
ω_e	$\equiv 0.0$	$\equiv 0.0$	radians
K_e	2.64 ± 0.64	2.64	m s^{-1}
P_f	$\equiv 93.8$	$\equiv 93.8$	days
$T\mathrm{conj}_\mathrm{f}$	$\equiv 2459462.9$	$\equiv 2459462.9$	JD
$T\mathrm{peri}_\mathrm{f}$	$\equiv 2459439.45$	$\equiv 2459439.45$	JD
e_f	$\equiv 0.0$	$\equiv 0.0$	
ω_f	$\equiv 0.0$	$\equiv 0.0$	radians
K_f	$4.23^{+0.68}_{-0.7}$	4.24	m s^{-1}
P_{add_de}	$\equiv 26.601$	$\equiv 26.601$	days
$T\mathrm{conj}_{\mathrm{add_de}}$	$\equiv 2459444.7188$	$\equiv 2459444.7188$	JD
$T\mathrm{peri}_{\mathrm{add_de}}$	$\equiv 2459438.0686$	$\equiv 2459438.0686$	JD
e_{add_de}	$\equiv 0.0$	$\equiv 0.0$	
ω_{add_de}	$\equiv 0.0$	$\equiv 0.0$	radians
K_{add_de}	$5.9e-05^{+0.065}_{-5.9e-05}$	$1e-11$	m s^{-1}
Orbital Parameters			
P_b	$\equiv 4.31$	$\equiv 4.31$	days
$T\mathrm{conj}_\mathrm{b}$	$\equiv 2458686.5658$	$\equiv 2458686.5658$	JD
$T\mathrm{peri}_\mathrm{b}$	$\equiv 2458685.4883$	$\equiv 2458685.4883$	JD
e_b	$\equiv 0.0$	$\equiv 0.0$	
ω_b	$\equiv 0.0$	$\equiv 0.0$	radians
K_b	2.9 ± 0.6	2.9	m s^{-1}
P_c	$\equiv 5.9$	$\equiv 5.9$	days
$T\mathrm{conj}_\mathrm{c}$	$\equiv 2458683.4661$	$\equiv 2458683.4661$	JD
$T\mathrm{peri}_\mathrm{c}$	$\equiv 2458681.9911$	$\equiv 2458681.9911$	JD
e_c	$\equiv 0.0$	$\equiv 0.0$	
ω_c	$\equiv 0.0$	$\equiv 0.0$	radians
K_c	3.82 ± 0.62	3.84	m s^{-1}
P_d	$\equiv 18.66$	$\equiv 18.66$	days
$T\mathrm{conj}_\mathrm{d}$	$\equiv 2458688.9653$	$\equiv 2458688.9653$	JD
$T\mathrm{peri}_\mathrm{d}$	$\equiv 2458684.3003$	$\equiv 2458684.3003$	JD
e_d	$\equiv 0.0$	$\equiv 0.0$	
ω_d	$\equiv 0.0$	$\equiv 0.0$	radians
K_d	$1.22^{+0.63}_{-0.59}$	1.18	m s^{-1}
P_e	$\equiv 37.92$	$\equiv 37.92$	days
$T\mathrm{conj}_\mathrm{e}$	$\equiv 2457000.7134$	$\equiv 2457000.7134$	JD
$T\mathrm{peri}_\mathrm{e}$	$\equiv 2456991.2334$	$\equiv 2456991.2334$	JD
e_e	$\equiv 0.0$	$\equiv 0.0$	
ω_e	$\equiv 0.0$	$\equiv 0.0$	radians
K_e	2.64 ± 0.64	2.64	m s^{-1}
P_f	$\equiv 93.8$	$\equiv 93.8$	days
$T\mathrm{conj}_\mathrm{f}$	$\equiv 2459462.9$	$\equiv 2459462.9$	JD
$T\mathrm{peri}_\mathrm{f}$	$\equiv 2459439.45$	$\equiv 2459439.45$	JD
e_f	$\equiv 0.0$	$\equiv 0.0$	
ω_f	$\equiv 0.0$	$\equiv 0.0$	radians
K_f	$4.23^{+0.68}_{-0.7}$	4.24	m s^{-1}
P_{add_de}	$\equiv 26.601$	$\equiv 26.601$	days
$T\mathrm{conj}_{\mathrm{add_de}}$	$\equiv 2459444.7188$	$\equiv 2459444.7188$	JD
$T\mathrm{peri}_{\mathrm{add_de}}$	$\equiv 2459438.0686$	$\equiv 2459438.0686$	JD
e_{add_de}	$\equiv 0.0$	$\equiv 0.0$	
ω_{add_de}	$\equiv 0.0$	$\equiv 0.0$	radians
K_{add_de}	$5.9e-05^{+0.065}_{-5.9e-05}$	$1e-11$	m s^{-1}
Other Parameters			

TABLE 3
Derived Posteriors

Parameter	Credible Interval	Maximum Likelihood	Units
a_b	$0.0493^{+0.0022}_{-0.0024}$	0.048	AU
$M_b \sin i$	$6.5^{+1.6}_{-1.5}$	6.3	$M_\oplus$
a_c	$0.0608^{+0.0027}_{-0.003}$	0.0592	AU
$M_c \sin i$	$9.7^{+1.9}_{-1.8}$	9.4	$M_\oplus$
a_d	$0.1309^{+0.0058}_{-0.0064}$	0.1276	AU
$M_d \sin i$	$4.5^{+2.4}_{-2.2}$	4.1	$M_\oplus$
a_e	$0.2101^{+0.0093}_{-0.01}$	0.2048	AU
$M_e \sin i$	$12.4^{+3.3}_{-3.2}$	11.6	$M_\oplus$
a_f	$0.384^{+0.017}_{-0.019}$	0.375	AU
$M_f \sin i$	$26.9^{+5.3}_{-5.0}$	27.3	$M_\oplus$
$a_a dd_d e$	$0.1659^{+0.0073}_{-0.0081}$	0.1617	AU
$M_a dd_d e \sin i$	$0.00025^{+0.27}_{-0.00025}$	$3e-05$	$M_\oplus$

TABLE 4
Summary of Priors

K constrained to be > 0
Gaussian prior on P_b: $4.31 \pm 2e-05$
Gaussian prior on $T\mathrm{conj_b}$: 2458686.5658 ± 0.001
Gaussian prior on P_c: $5.9 \pm 8e-05$
Gaussian prior on $T\mathrm{conj_c}$: 2458683.4661 ± 0.003
Gaussian prior on P_d: $18.66 \pm 5e-05$
Gaussian prior on $T\mathrm{conj_d}$: 2458688.9653 ± 0.009
Gaussian prior on P_e: 37.92 ± 0.0001
Gaussian prior on $T\mathrm{conj_e}$: 2457000.7134 ± 0.0089
Gaussian prior on P_f: 93.8 ± 0.0001
Gaussian prior on $T\mathrm{conj_f}$: 2459462.9 ± 0.0089
Bounded prior: $-20.0 < \sigma_\mathrm{j} < 20.0$

TABLE 5
Final Convergence Criterion

Criterion	Final Value
minAfactor	101.486
maxArchange	0.016
maxGR	1.008
minTz	3401.778

TABLE 6
Radial Velocities

Time (JD)	RV (m s^{-1})	RV Unc. (m s^{-1})	Inst.
2458917.06227	4.82	1.78	j
2458918.06580	9.02	1.66	j
2458919.05511	0.60	1.53	j
2458995.87585	6.04	1.93	j
2458999.89268	15.83	1.72	j
2459002.92823	3.45	1.60	j
2459003.89134	0.80	1.56	j
2459006.88414	-3.67	1.60	j
2459013.87325	-3.05	1.66	j
2459016.87492	-3.96	1.82	j
2459024.86927	-1.91	1.57	j
2459027.83837	-2.96	1.39	j
2459030.89287	3.19	1.63	j
2459034.85573	6.25	1.59	j
2459036.79199	4.97	1.46	j
2459038.84046	0.42	1.57	j
2459069.00985	5.46	2.56	j
2459071.93664	5.97	1.77	j
2459072.87996	7.48	1.75	j
2459077.88344	11.61	1.67	j
2459086.87479	-8.95	2.27	j
2459089.87543	0.78	1.61	j
2459090.80766	0.02	1.63	j
2459091.81037	-10.19	1.67	j
2459092.80462	-6.71	1.61	j
2459094.79032	3.15	1.80	j
2459097.87403	-3.73	1.84	j
2459101.77339	0.80	1.61	j
2459114.75154	-2.73	1.62	j
2459115.78545	0.73	1.56	j
2459117.75377	-1.51	1.57	j
2459118.76969	2.02	1.58	j
2459119.76203	-2.99	1.97	j
2459120.73793	-0.06	1.71	j
2459121.72997	-13.88	1.76	j
2459122.74503	-7.78	1.58	j
2459123.73465	0.21	1.57	j
2459153.71066	8.07	1.68	j
2459269.13557	-12.30	1.73	j
2459296.10098	6.81	1.57	j
2459297.04778	3.19	1.65	j
2459300.00609	-4.14	1.97	j
2459314.07830	-1.22	1.43	j
2459353.86001	6.32	1.69	j
2459354.94389	6.58	1.67	j
2459358.91097	-9.48	1.70	j
2459361.94571	8.19	1.46	j
2459373.81907	6.75	1.70	j
2459377.07153	-5.15	1.57	j
2459377.83080	5.32	1.64	j

Note. — Only the first 50 of 99 RVs are displayed in this table. Use `radvel table -t rv` to save the full LaTeX table as a separate file.

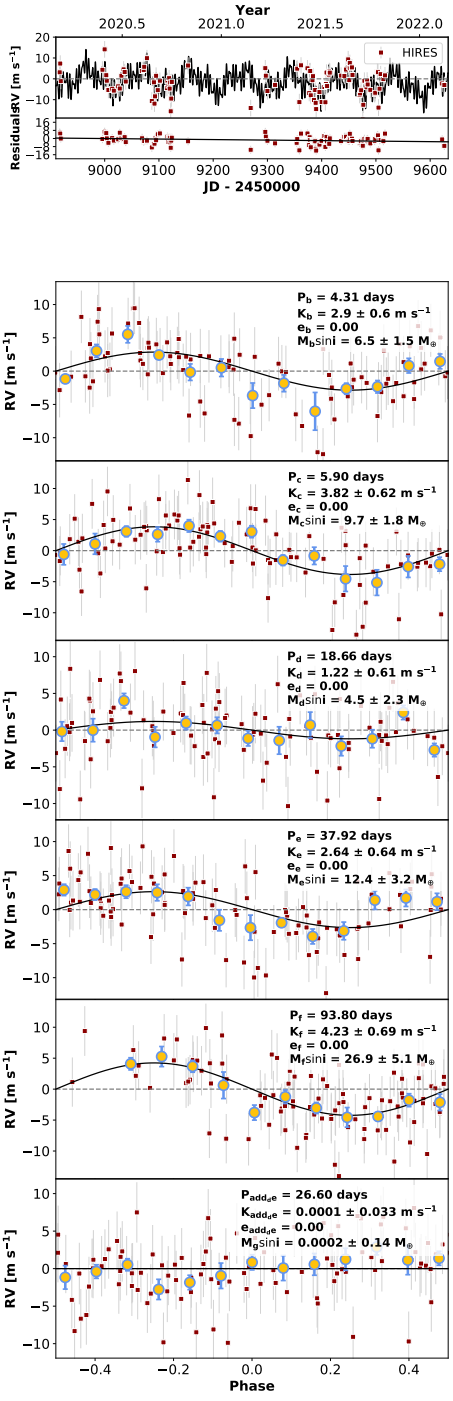

FIG. 1.— Best-fit 6-planet Keplerian orbital model for TOI-1246_add_de. The maximum likelihood model is plotted while the orbital parameters listed in Table 2 are the median values of the posterior distributions. The thin blue line is the best fit 6-planet model. We add in quadrature the RV jitter term(s) listed in Table 2 with the measurement uncertainties for all RVs. **b)** Residuals to the best fit 6-planet model. **c)** RVs phase-folded to the ephemeris of planet b. The Keplerian orbital models for all other planets (if any) have been subtracted. The small point colors and symbols are the same as in panel **a**. Red circles (if present) are the same velocities binned in 0.08 units of orbital phase. The phase-folded model for planet b is shown as the blue line.

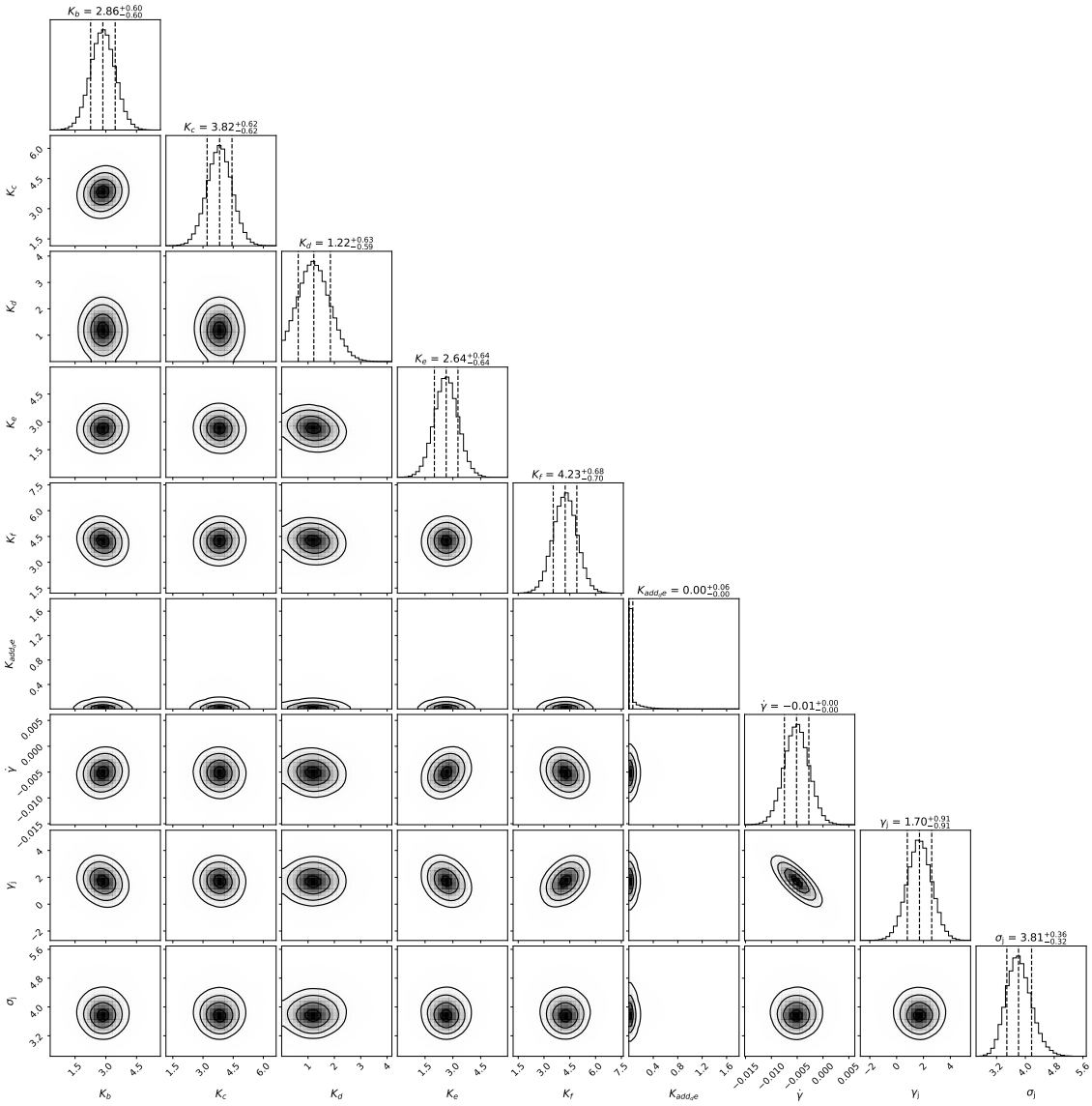

FIG. 2.— Posterior distributions for all free parameters.

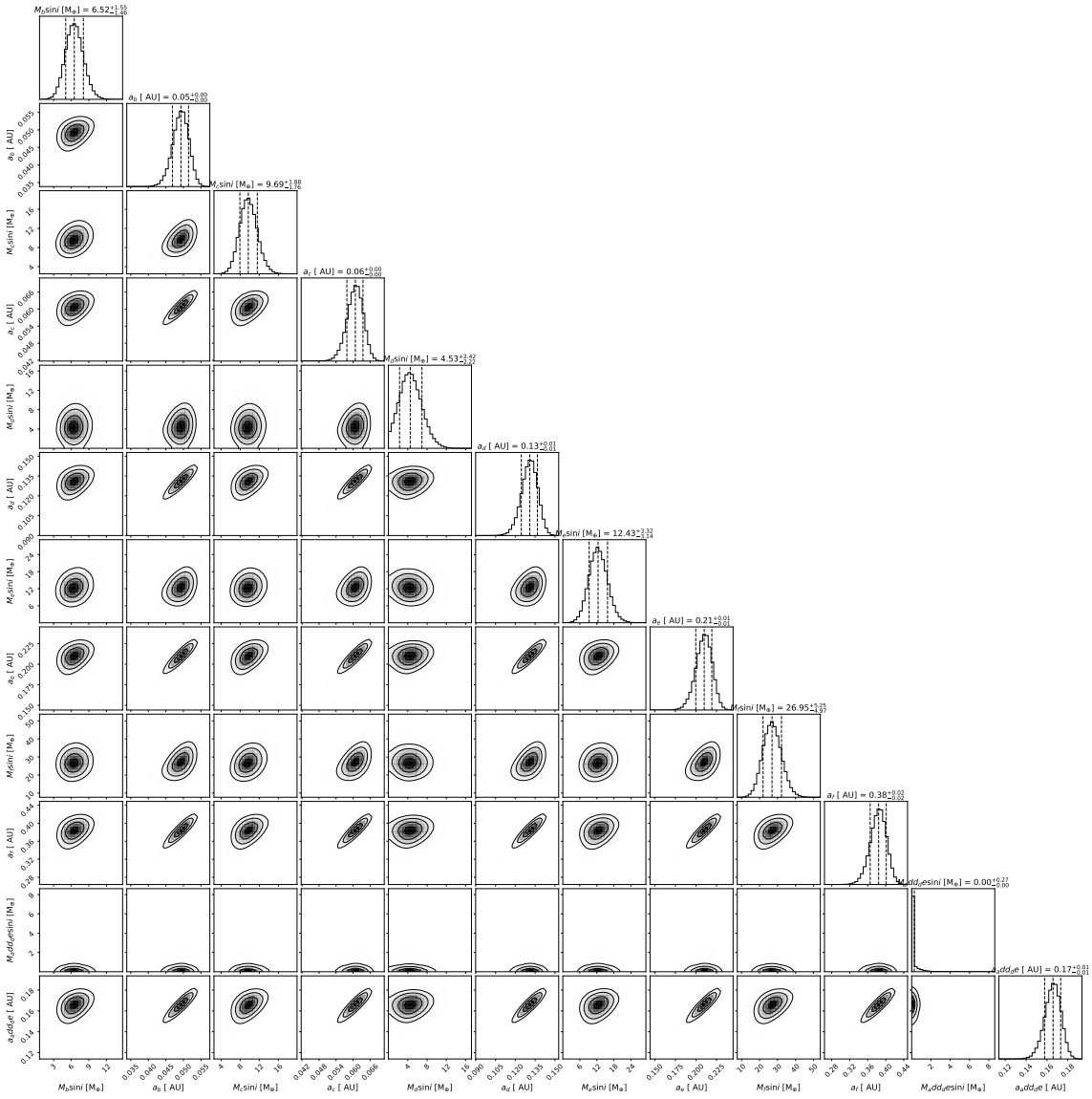

FIG. 3.— Posterior distributions for all derived parameters.