

Table 21. Condition scheme for TimeDiT, compared on the zero-shot forecasting task, fair comparison on the same checkpoint with same training steps.

Dataset	AdaLN	Additive	Cross-attention	Token concatenation
Solar	0.457(0.002)	0.671(0.002)	0.721(0.002)	0.463(0.001)
Electricity	0.026(0.001)	0.068(0.004)	0.079(0.003)	0.041(0.003)
Traffic	0.185(0.010)	0.224(0.001)	0.216(0.000)	0.188(0.008)

Table 22. Results in predicting the input of TimeDiT, compared on the zero-shot forecasting task, , fair comparison on the same checkpoint with same training steps.

Dataset	TimeDiT	Predict the input
Solar	0.424(0.002)	0.462(0.003)
Electricity	0.030(0.001)	0.045(0.002)

Table 23. Performance metrics for weather and ecl datasets on different model size.

		S		B		L	
		MSE	MAE	MSE	MAE	MSE	MAE
Weather	0.125	0.029	0.033	0.029	0.026	0.025	0.024
	0.250	0.031	0.033	0.033	0.029	0.028	0.027
	0.375	0.034	0.037	0.036	0.033	0.031	0.031
	0.500	0.031	0.041	0.042	0.039	0.036	0.036
	Avg	0.031	0.036	0.035	0.032	0.030	0.029
ECL	0.125	0.051	0.148	0.050	0.144	0.048	0.140
	0.250	0.061	0.163	0.060	0.158	0.058	0.154
	0.375	0.074	0.181	0.071	0.175	0.069	0.170
	0.500	0.090	0.202	0.087	0.197	0.084	0.190
	Avg	0.069	0.174	0.067	0.169	0.065	0.163

Table 24. Performance comparison of different models on ETTh1 and ETTh2 datasets

Dataset	Metric	Horizon	TimeDiT	TIME-MOE _{base}	TIME-MOE _{large}	TIME-MOE _{ultra}	TimeLLM	TimesFM	Moment	Chronos _{small}	Chronos _{base}	Chronos _{large}	Timer-1B	Timer-16B	Timer-28B
ETTh1	MSE	96	0.325	0.357	0.350	0.349	0.450	0.414	0.688	0.466	0.440	0.441	0.438	0.364	0.393
		192	0.347	0.384	0.388	0.395	0.465	0.465	0.688	0.530	0.492	0.502	0.509	0.401	0.434
		336	0.347	0.411	0.411	0.447	0.501	0.503	0.675	0.570	0.550	0.576	0.554	0.423	0.460
		720	0.404	0.449	0.427	0.457	0.501	0.511	0.683	0.615	0.882	0.835	0.706	0.436	0.487
		Avg.	0.356	0.400	0.394	0.412	0.479	0.473	0.683	0.545	0.591	0.588	0.552	0.406	0.444
ETTh2	MSE	96	0.257	0.305	0.302	0.292	0.279	0.315	0.342	0.307	0.308	0.320	0.315	0.294	0.308
		192	0.316	0.351	0.364	0.347	0.351	0.388	0.354	0.376	0.384	0.406	0.393	0.353	0.348
		336	0.341	0.391	0.417	0.406	0.388	0.422	0.356	0.408	0.429	0.492	0.412	0.376	0.366
		720	0.447	0.419	0.537	0.439	0.391	0.443	0.395	0.604	0.501	0.603	0.425	0.393	0.409
		Avg.	0.340	0.366	0.405	0.371	0.353	0.392	0.361	0.424	0.405	0.455	0.386	0.354	0.358
ETTh1	MAE	96	0.386	0.381	0.382	0.379	0.452	0.404	0.557	0.409	0.393	0.390	0.425	0.388	0.421
		192	0.390	0.404	0.412	0.413	0.461	0.434	0.560	0.450	0.426	0.424	0.459	0.410	0.447
		336	0.396	0.434	0.430	0.453	0.482	0.456	0.563	0.486	0.462	0.467	0.482	0.422	0.464
		720	0.440	0.477	0.455	0.462	0.502	0.481	0.585	0.543	0.591	0.583	0.544	0.444	0.494
		Avg.	0.403	0.424	0.419	0.426	0.474	0.443	0.566	0.472	0.468	0.466	0.478	0.416	0.456
ETTh2	MAE	96	0.331	0.359	0.354	0.352	0.337	0.349	0.396	0.356	0.343	0.345	0.351	0.350	0.369
		192	0.380	0.386	0.385	0.379	0.374	0.395	0.402	0.401	0.392	0.399	0.402	0.385	0.398
		336	0.418	0.418	0.425	0.419	0.415	0.427	0.407	0.431	0.430	0.453	0.422	0.400	0.414
		720	0.441	0.454	0.496	0.447	0.420	0.454	0.434	0.533	0.477	0.511	0.440	0.420	0.446
		Avg.	0.393	0.404	0.415	0.399	0.387	0.406	0.409	0.430	0.410	0.427	0.404	0.389	0.407

Table 25. TimeDiT’s performance on Computational Fluid Dynamics with different parameters.

Model	MSE	RMSE	MAE	CRPS	CRPS_sum	MSE	RMSE	MAE	CRPS	CRPS_sum
$\eta = 0.0010(\text{Low}), \zeta = 0.0010(\text{Low})$						$\eta = 0.0100(\text{High}), \zeta = 0.0010(\text{Low})$				
DDPM	0.0076	0.0874	0.0720	0.1012	0.0988	0.0035	0.0588	0.0485	0.0764	0.0622
DDIM	0.0590	0.2428	0.2340	0.3663	0.3918	0.0370	0.1923	0.1843	0.3119	0.3320
TSDiff	0.2844	0.5333	0.5256	1.0000	1.0000	0.2268	0.4762	0.4747	0.9999	0.9999
TimeDiT	0.0046	0.0681	0.0558	0.0859	0.0755	0.0030	0.0547	0.0450	0.0714	0.0571
$\eta = 0.0010(\text{Low}), \zeta = 0.0100(\text{High})$						$\eta = 0.0100(\text{High}), \zeta = 0.0100(\text{High})$				
DDPM	0.0052	0.0719	0.0598	0.0910	0.0816	0.0042	0.0652	0.0530	0.0821	0.0719
DDIM	0.0464	0.2154	0.2043	0.3436	0.3694	0.0401	0.2002	0.1901	0.3227	0.3421
TSDiff	0.2497	0.4997	0.4858	0.9999	0.9999	0.2304	0.4800	0.4766	0.9999	0.9999
TimeDiT	0.0046	0.0679	0.0559	0.0857	0.0764	0.0038	0.0613	0.0493	0.0772	0.0661